



No More Petrol Permits.

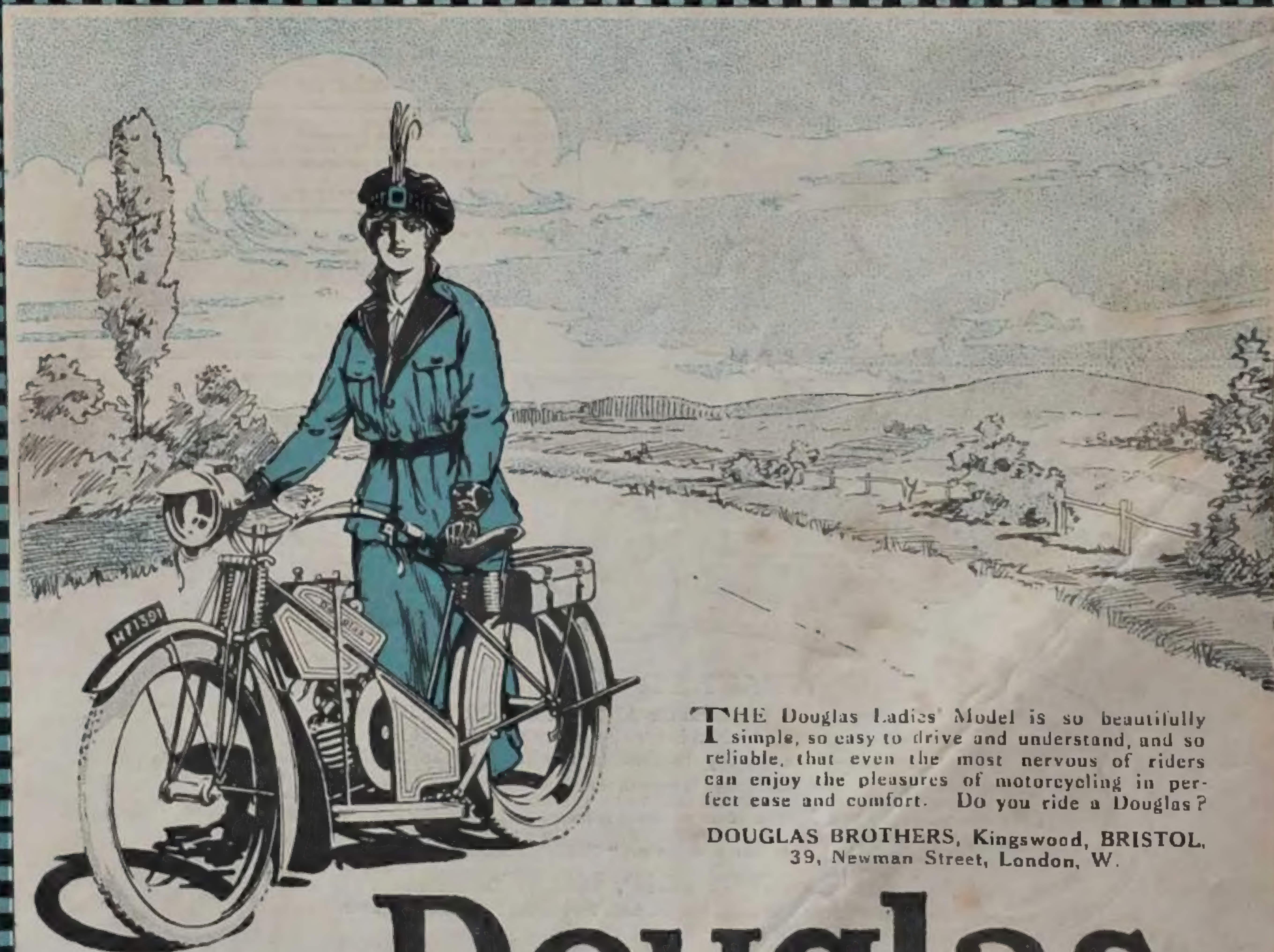
1<sup>d</sup>

# Motor Cycling

VOL. XV

TUESDAY, 13TH FEBRUARY, 1917.  
*Registered at the G.P.O. as a Newspaper.*

No. 379.



THE Douglas Ladies Model is so beautifully simple, so easy to drive and understand, and so reliable, that even the most nervous of riders can enjoy the pleasures of motorcycling in perfect ease and comfort. Do you ride a Douglas?

DOUGLAS BROTHERS, Kingswood, BRISTOL,  
39, Newman Street, London, W.

# Douglas

Please mention "Motor Cycling" when corresponding with advertisers.

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Deliveries of : :  
of : :

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261, Deansgate, Manchester.  
31, Renshaw Street, Liverpool.  
62, High Street, Leicester.





## ALLDAYS ■ ALLON ■ TWO-STROKE

combines many unique and original features, which have done so much to put motor-cycling on the high level it now occupies.

Here are just a few :

*Flexible—2 to 45 m.p.h.*

*Economical—Over 100 m.p.g.*

*Simplicity in Construction.*

*Easily Accessible to all parts.*



In consequence of the increased price of material and scarcity of labour, we have been compelled to increase the price of our Allon Motorcycle with single gear from £14 to £17 16s. The price of the other models will be increased by 5 per cent.

The ALLON is the HALL MARK of PERFECTION

**ALLDAYS & ONIONS** Pneumatic  
**CO., LTD., BIRMINGHAM.** Engineering

London Offices & Showrooms—58, HOLBORN VIADUCT, E.C. 1.  
Liverpool Depot: 53, RENSCH STREET. Established 1650.

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### WEATHER—proofedness:

Comprehensive provision for ALL-WEATHER conditions — the benefits from which being outstandingly important during the current season — is a luxury realised to the full by the A. J. S. owner.

This is due to carefully-considered design in general, and, in particular, to the famous A.J.S. ORIGINAL ALL-ENCASED WEATHERPROOF CHAIN TRANSMISSION — affording complete immunity from friction in the working parts. The effect of this is to ensure no loss of power — and as equally good running as in fine weather.

*Is your name on our "WAITING LIST"?*

**A. J. STEVENS & Co. (1914), Ltd., WOLVERHAMPTON.**

London Agents—H. TAYLOR & Co., Ltd., Store Street, Tottenham Court Road.

# Motor-Cycles

**manufactured throughout at our own Works**

PLEASE REFER TO "MOTOR CYCLING"

WHEN CORRESPONDING WITH ADVERTISERS.



## ENGINE TROUBLE?

**C** Have you ever noticed how easy it is to give good advice and render practical assistance in a case of breakdown, when the motorcycle is any other than the one you happen to be riding? and yet, when it is your own machine that is stopped with no help at hand, how desperate you feel and confused your ideas?

**C** A booklet which coldly and methodically analyses all the likely causes of failure in an engine (with their corresponding remedies) is a friend in need that may be of the utmost value to you if carried in your pocket or on your machine.

**C** Such a booklet (pocket size) has just been published by **The Lodge Sparking Plug Co., Limited, Rugby.** who will gladly send you a copy free if you apply to them at once. It is called "A System of Locating Faults in the Petrol Engine," and is both brief and to the point.

## THE LODGE PLUG.



Standard Model, **4/-** of all Dealers.

## Index to Advertisers in

# Motor Cycling

NOTE.—The Supplement will be found at the end of the book; it comprises the "Motor Cycling Mart," and contains many displayed advertisements in addition to the prepaid line announcements.

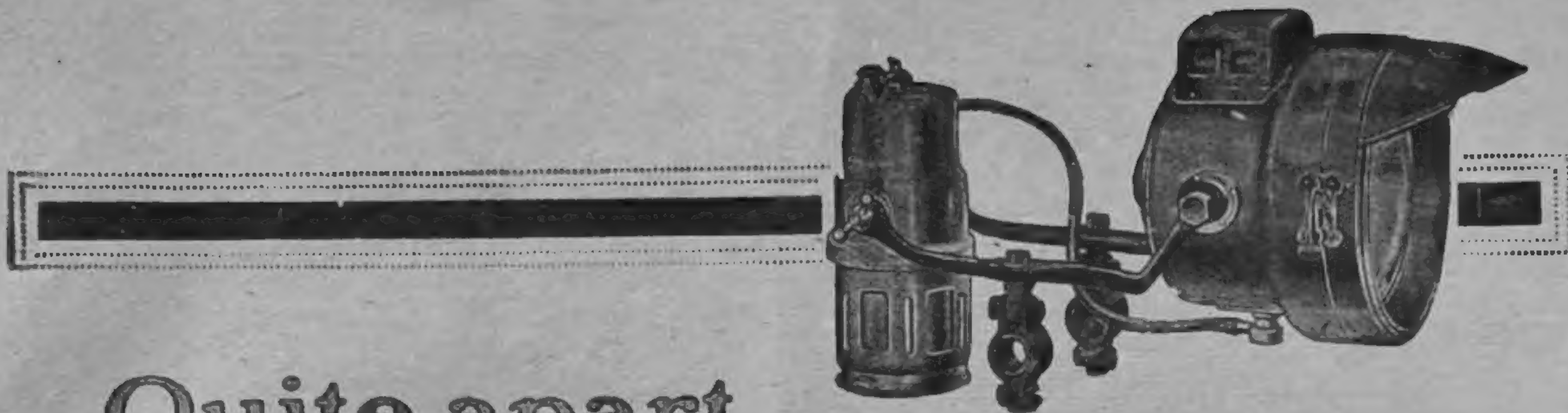
Aston Motor Accessories Co, Ltd	...	...	...
Alexander & Co.	...	Supp. iv	...
Alldays & Onions Pneumatic Eng. Co, Ltd	...	Inside Front Cover	...
Ariel Works Ltd	...	viii	...
Avon India Rubber Co Ltd	...	...	...
Barbour, J., & Sons Ltd	...	Inside Back Cover	...
Bartlett, G. B., & Co	...	...	...
Bat Motor Mfg. Co.	...	...	...
Bates, W. & A., Ltd	...	...	...
Bayliss, Thomas & Co.	...	vi	...
Birmingham Small Arms Co, Ltd	...	...	...
Bowden Wire Ltd	...	...	...
Bradbury & Co	...	...	...
Brooks, J. B. & Co, Ltd	...	ix	...
Butterfields, Ltd	...	Supp. i	...
Burney & Blackburne	...	ix	...
Chater Lea, Ltd	...	xii	...
Collier, H. & Sons, Ltd	...	...	...
Colmore Depot	...	Front Cover	...
County Chemical Co, Ltd	...	...	...
Coventry Chain Co., Ltd	...	...	...
County Engineering Co	...	Supp. xi	...
Douglas Bros.	...	Front Cover	...
Dunlop Rubber Co., Ltd	...	...	...
Eastern Garage Co	...	Supp. iii	...
Economic Tyre Co	...	Supp. xiii	...
Edwards, W. P.	...	...	...
Eloa & Co	...	Supp. vi	...
Elite Rubber Co., Ltd	...	...	...
Exeter Motorcycle & Light Car Co	...	Supp. ix	...
Evans, P. J.	...	Supp. vii	...
F. R. S. Lamps	...	...	...
Forward Motor Co.	...	Supp. xiii	...
Fox's Puttees	...	Inside Back Cover	...

G. K. Sidecar Co.	...	...	...
Goddards, Ltd	...	Supp. xii	...
Godfreys, Ltd	...	Supp. v	...
Grado Mfg. Co	...	Supp. xii	...
Grose, James, Ltd	...	...	...
Half-Price Auto List Co	...	Supp. xii	...
Harley-Davidson Motor Co, Ltd	...	vii	...
Hendee Mfg. Co	...	xi	...
Herwin Cannoy & Co	...	Supp. vi	...
Horlick's Malted Milk	...	...	...
Hutchinson Tyre Co	...	...	...
Ixion Motor Mfg. Co	...	...	...
James Cycle Co, Ltd	...	vii	...
Jenson & Nicholson, Ltd	...	Supp. x	...
Kempshall Tyre Co. (of Europe), Ltd	...	x	...
Lambert's	...	Supp. x	...
Leicester Rubber Co, Ltd	...	...	...
Lodge Sparking Plug Co Ltd	...	v	...
Lomax, Ltd	...	Supp. xii	...
M.T. Magneto Synd. Ltd	...	...	...
Maud's Motor Mart	...	Supp. iv	...
Mead & Deakin	...	Inside Back Cover	...
Miller, H. & Co, Ltd	...	...	...
Mills-Fullford Ltd	...	...	...
Morris Garage	...	Supp. xii	...
Motor Insurance Bureau	...	...	...
Marvale Accessories Co	...	Supp. xiii	...
New Imperial Cycle & Motor Co	...	...	...
North British Rubber Co, Ltd	...	...	...
North Wales Motor Exchange	...	...	...

Palmer Tyre Ltd	...	...	...
Pedley, J. & Sons, Ltd	...	...	...
Philipson & Co	...	...	...
Phoenix Motors, Ltd	...	...	...
Powell & Hammer Ltd.	...	vi	...
Prestwich, J. A. & Co	...	...	...
Prices Co. Ltd	...	...	...
Provident Clerks & General Guarantee and Accident Co, Ltd	...	...	...
Radnall, E. A., & Co	...	xvi	...
Reading-Standard Motorcycle Co	...	...	...
Rey, A. P.	...	Supp. vi	...
Serviss Co, Ltd	...	Supp. viii	...
Severn Rubber Co, Ltd	...	Supp. xiii	...
Smith, George	...	...	...
Sphinx Manufacturing Co	...	Back Cover	...
Stanley Motor Belt & Fastener Co	...	Supp. x	...
Stevens, A. J., & Co, Ltd	...	Inside Front Cover	...
Sturmay-Archer Gears	...	xi	...
Tan Sad	...	Supp. xii	...
Terry, H., & Sons, Ltd	...	Inside Back Cover	...
Triumph Cycle Co, Ltd	...	...	...
Troward, Rider & Co.	...	Supp. v	...
Vandervell, C. A. & Co, Ltd	...	...	...
Veloc, Ltd	...	...	...
Vickers, Archibald, Ltd.	...	xiii	...
Wakefield, C. G., & Co	...	Supp. i	...
Wauchope's	...	...	...
Wartie's Motors, Ltd	...	Supp. ix	...
Whitely, Wm., Ltd	...	...	...
Wulfrun Engineering Co	...	...	...
Youngs, F. J.	...	Supp. xii	...
Zepith Motors Ltd	...	...	...

PLEASE REFER TO "MOTOR CYCLING" WHEN CORRESPONDING WITH ADVERTISERS.





## Quite apart

To riders the country over, "P & H" Lamps stand uniquely distinct for "the Quality that bespeaks RELIABLE Service."

And their conviction but approves what, in our "30 years and more" BRITISH experience, we have uniformly accomplished in improved Lamp design.

Our Motor Cycle Booklet fully describes the popular "P & H" Headlight shown — let us send you copy NOW.

Powell & Hanmer, Ltd., Chester St., B'HAM.

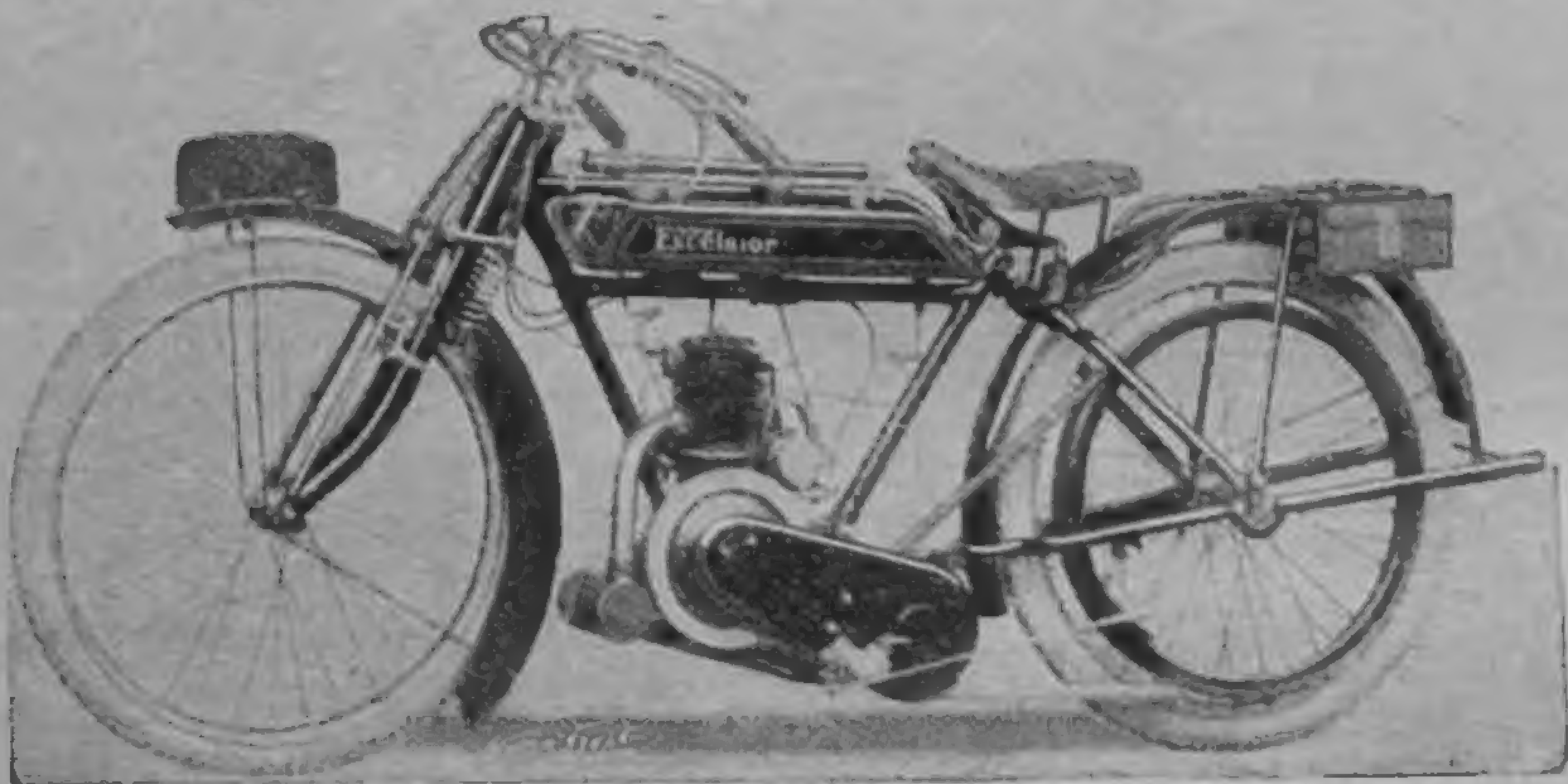


The RELIABLE Lamps.

# The British EXCELSIOR

## The Ideal Machine for Town or Country

THE Ideal Machine for either Town or Country is the thoroughly British "Excelsior"  $2\frac{1}{4}$  h.p. It is simple in construction and very easy to control. Solidly built, and as reliable as it is possible for a Lightweight to be. Above all, it is very inexpensive to run.



Price, Single Speed,  $2\frac{1}{4}$  h.p. ... £32:10:0  
Two-speed, Two-stroke,  $2\frac{1}{4}$  h.p. (no clutch, as illustrated) £39:5:0  
Two Speed Model,  $2\frac{3}{4}$  h.p. ... £44:2:0

Bayliss, Thomas & Co., Excelsior Works, Founded 1874, Coventry.

Sole London Agents: H. Taylor & Co., Ltd., Store Street, W.C.

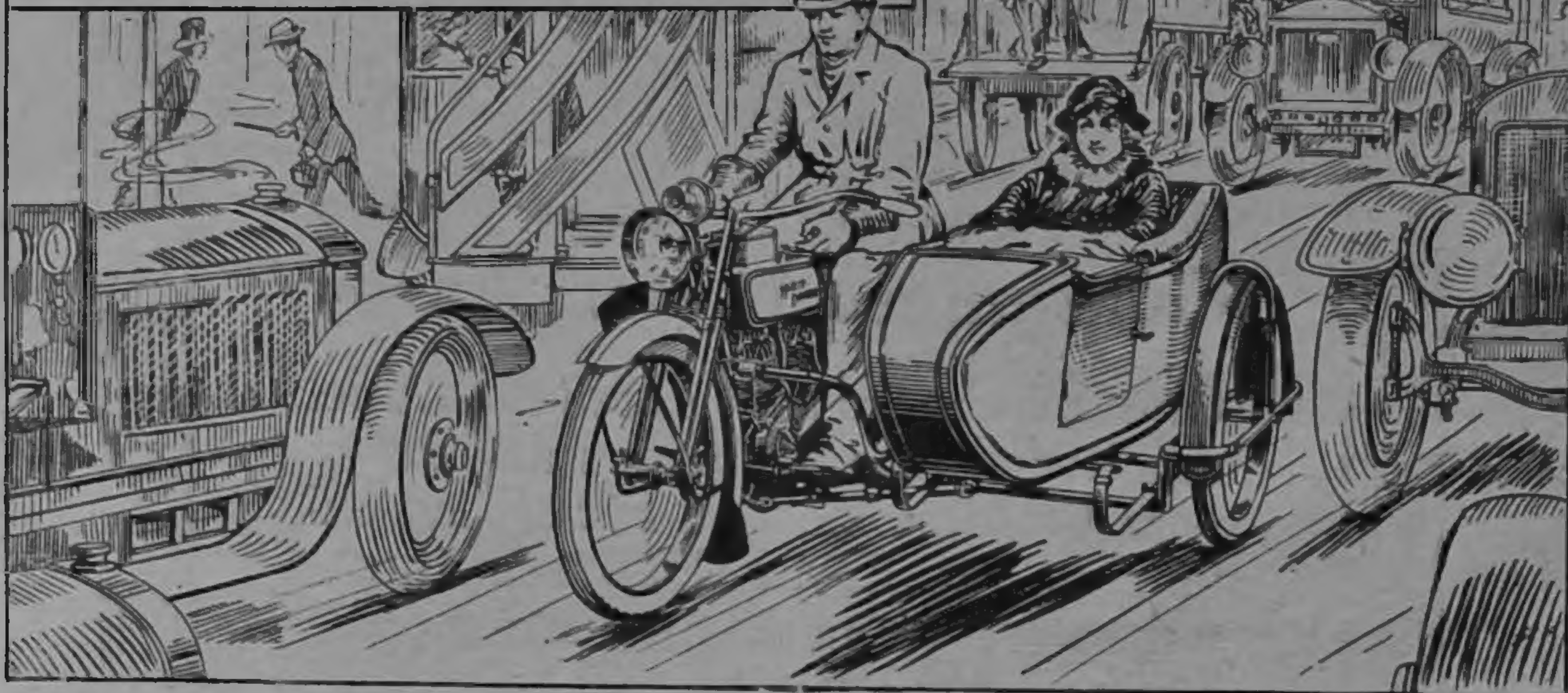
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# HARLEY-DAVIDSON

ease of control robs traffic riding of all its terrors. The wonderfully flexible engine, easy changing three-speed gear, powerful brakes and silky clutch, turn a trying ordeal into a pleasure jaunt. **IMMEDIATE DELIVERY OF 1917 MODELS.**

74, NEWMAN STREET, LONDON, W.



A

# "JAMES"

—the day  
**Peace**  
is  
**declared.**

To the riders who are now visualizing their "mount-to-be" for after-the-war we commend the expression contained in the unsolicited JAMES "testimony" recently received:—

December 30th, 1916.

"The 'Happy Moments' spent on my 1913 'JAMES,' which has run many thousands of miles with sidecar, have often tempted me to say that *the day Peace is declared* I shall order a 'JAMES' up-to-date — although I have ridden many makes."

J.T.M.S.

And it's always "A JAMES preferred" with the buyer who has once experienced the Perfect Service of these "Best BRITISH" machines — embraced in the undernoted range:—

No 6, 4½ h.p. "Big Single" 3-sp., for Sidecar £69 10

or complete with JAMES CANOELET Sidecar, £16 16s. extra.

No. 7, 3½ h.p. Twin 3-sp., with Hand-con-

trolled Clutch. Solo Mount ... £69 10

No. 8, 2½ h.p., 2-str., 2-sp. Lightweight ... £42 0

**The JAMES CYCLE CO., LTD.**  
**GREET, BIRMINGHAM.**

London Depot: 22, HOLB. VIA., E.C. B ham: BROAD ST. CORNER



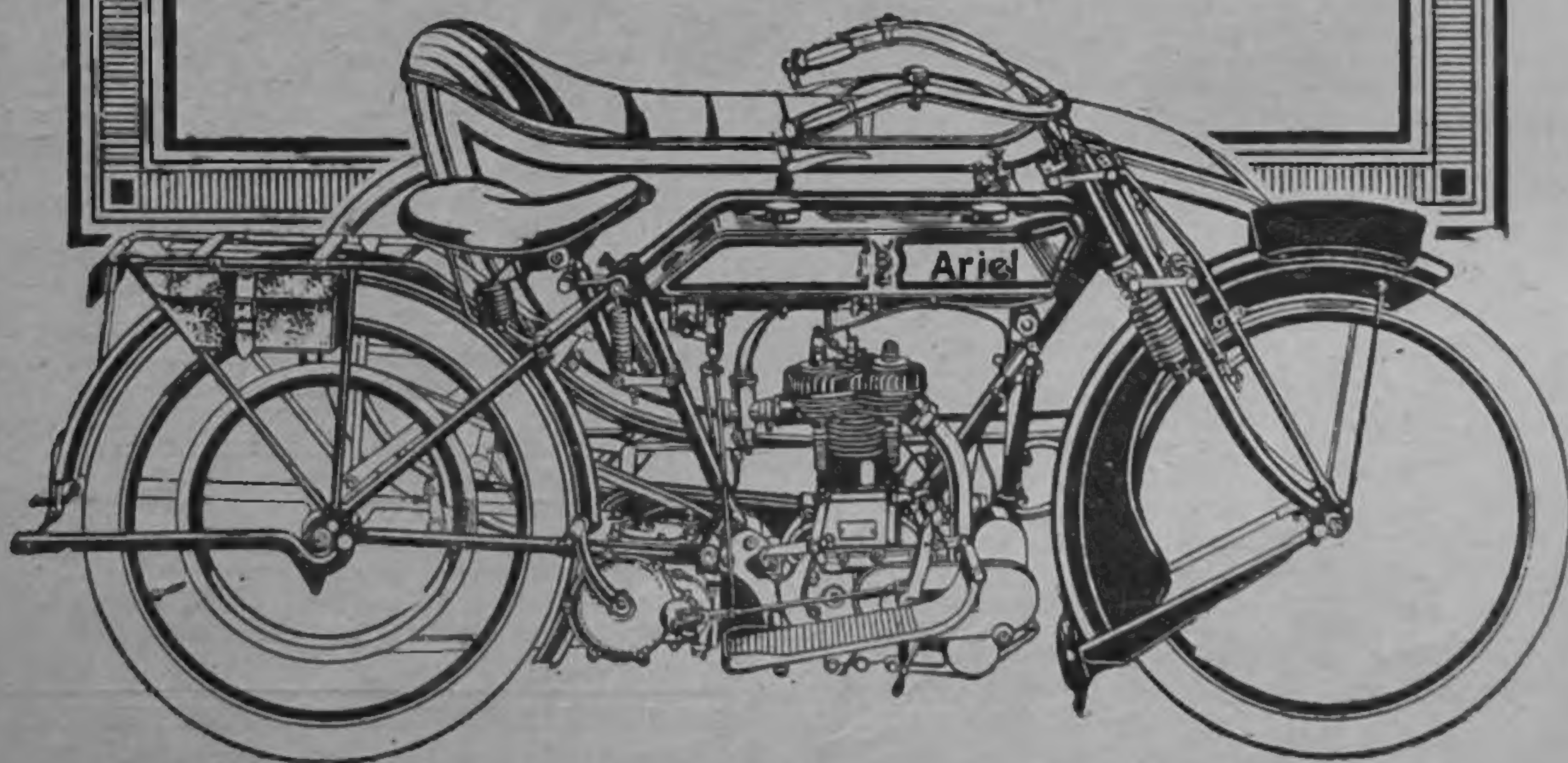


The Motorcycle of Supreme Reliability  
**Guaranteed to start Easily**

One of the many excellent Ariel qualities is that it always starts easily—at the first kick. Here is an example: C.E.M., New Brighton, writes—"I returned from France the other day and took out my 1915 Ariel. It hadn't been used since last Xmas (1915), but fired first kick and seemed in every way as good as new."

*The easy starting guarantee is plainly stated in our 32-page art catalogue, which is post free on request.*

**ARIEL WORKS, Ltd., 4, Bournbrook, BIRMINGHAM.**





FOUNDED 1902.  
NEW SERIES BEGUN 1909.

Conducted by  
EDMUND DANGERFIELD  
(Conductor of 'THE MOTOR:  
"CYCLING," etc.).

# MotorCycling

*A Newspaper for Motorcyclists only*

Edited, Written, and Illustrated  
by

A STAFF OF  
PRACTICAL  
MOTORCYCLISTS.

Offices: 7.15, ROSEBERY  
AVENUE, LONDON, E.C.

## An Outbreak of Questionable Prosecutions.

Revival of the Old Cut-out Scare. How Certain "Funk-hole" Policemen are "Justifying" Their Existence.

**D**URING the past few weeks we have had more than one occasion to draw attention to the increasing activity on the part of the police who are summoning motorcyclists for driving machines fitted with a cut-out. As we have pointed out, such summonses are quite illegal, and a motorcyclist can, in fact, only be summoned for driving a machine which makes too much noise. It is true that this question of proof lies with any policeman, and consequently the motorcyclist is not very much better off than when he can be summoned for the actual fitting of a cut-out to his machine, but, nevertheless, he is better off than he was before.

The Auto-Cycle Union has just taken up a very strong case, which was brought before the Kingston magistrates last week, and we append below a letter which we have received from Mr. T. W. Loughborough, Secretary of the Auto-Cycle Union, dealing with the results obtained:—

A member of the Auto-Cycle Union was summoned to appear yesterday at the Kingston police court charged with exceeding the speed limit and with contravention of the silencer regulations. As regards the first charge the defendant pleaded guilty, and I have no remarks to make except that it seems to me to indicate that the police cannot yet have contributed their fair share of men to the Army if a number of able-bodied constables can still be spared to indulge in this detestable trapping. But as to the second charge, which was apparently the result of the defendant fitting an unusually large expansion chamber (without any cut-out), and, one of the constables poking a stick up it to ascertain if it was fitted with any baffle-plates, I should like to record a protest against the interpretation put on the silencer regulations—which in themselves are quite reasonable—by the police, supported as in this case by a magisterial decision. Before the case came on I had the offending machine driven at about 20 miles per hour, and, as I afterwards stated on oath, it was, in my opinion, one of the quietest machines I have heard. After the case was heard I took an opportunity of judging the noise when the engine was being driven "all out," and even so I considered it unusually quiet. In my evidence I stated that, as proved at the Silencer Trials held by the Auto-Cycle Union in 1913, the most efficient form of silencer was a large plain expansion chamber, and that such a design of silencer was to be found in many of the leading makes of motorcars and motorcycles. The police were, however, obsessed with the idea that there must be internal baffle-plates; in fact, after the hearing one of the constables interested, told me that the Act insisted on baffle-plates! The magistrates ignored my evidence and refused to hear the machine running themselves; they convicted and fined the defendant, whose licence was thereupon endorsed "For using cut-out 10s." I am advised that, as the offence was a question of fact, to decide which the Bench had preferred to believe the police rather than expert evidence as they might have obtained with their own ears, it would be useless to take the case further. But if any similar summons should be issued in future I should be glad to be at once informed in order that the Auto-Cycle Union may do everything possible to stop this persecution of motorcyclists, a persecution which aims at reading into the regulations something which is not there and tends to retard the progress of motorcycle design.

It is rather a remarkable thing that, notwithstanding the fact that Mr. Loughborough gave evidence on oath, the magistrates decided to summon the motorcyclist, and, it will be seen, endorsed his licence "For using cut-out, 10s." Now, whilst the previous part of the case was argued on a question of the machine making too much noise there could be no question of appeal, as the magistrates were undoubtedly within their rights, no matter how unfairly they exercised those rights. We consider, however, that in endorsing a motorcyclist's licence "For using a cut-out, 10s.," they were acting illegally. If the Statutory Rules and Orders 1912, No. 1696 (Motor Cars, Use and Construction, etc., etc.) is obtained it will be seen that it embodies the following important amendment:—

"(7) He shall not use any cut-out, fitting, or other apparatus or device, which will allow the exhaust gases from the engine of the motorcar to escape into the atmosphere *without first passing through a silencer, expansion chamber or other contrivance, suitable and sufficient for reducing as far as may reasonably be practicable the noise which would otherwise be caused by the escape of the said gases.* Provided that this Regulation shall apply only to a motor car propelled by an internal-combustion engine."

Now the whole point lies in the fact that a cut-out is perfectly permissible and legal on a machine, providing that the exhaust gases first pass through a suitable expansion chamber, and, therefore, it should be impossible for any magistrate to countenance the prosecution in which the words "cut-out" enter at all. As in the case quoted the motorcyclist could point out, or as his legal advisor did point out, that the exhaust gases were led by long pipes to the rear of the machine where they entered an expansion chamber, the cubical contents of which were many times that of the engine capacity, we think that if the case were to be taken to a higher court the magistrate's decision would be set aside. It is a thousand pities that some motorist or motorcyclist who has the interests of the movement at heart does not take up a case of this nature.

In the course of an interesting interview with an important personage at Scotland Yard we gathered the impression that no general instructions had been sent out for police to take up a general activity in summoning motorcyclists for driving noisy machines, but it was pointed out to us that there were still many machines on the road which could be classed in this category, and for the benefit of the motor-cycling community at large we should strongly urge riders, especially of two-stroke machines, not to interfere with the silencing arrangements, so as to give the exhaust gases a freer exit



# EDITORIAL

"MOTOR CYCLING" is published in London every Tuesday morning.

HEAD OFFICES—7-15, ROSEBERY AVENUE, LONDON, E.C. Telephone No. 5292 Holborn (four lines). Telegrams—"Motor Cycling, Holb., London."

MIDLAND OFFICES—9 & 10, Burlington Chambers, New Street, BIRMINGHAM. Telephone No. 2498 Midland. Telegrams—"Presswork, Birmingham." 6, Warwick Row, Coventry. Telephone No. 983 Coventry. Telegrams—"Presswork, Coventry."

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Other Parts of the British Empire and Foreign Countries ... ..	10s. 0d.	5s. 0d.	2s. 6d.

REMITTANCES—Postal Orders, Cheques, etc., should be crossed and made payable to "Temple Press Limited." All letters regarding subscriptions must be addressed to "The Manager."

## CONTRIBUTIONS.

All Editorial Communications and copy must reach The Editor not later than first post Friday morning. Drawings or MSS. which are unsuitable will be returned if stamps are enclosed, but the Editor does not hold himself responsible for the safe keeping or return of any article or photograph submitted.

Accounts for contributions should be sent in, immediately after publication, to "The Manager." Payment will be made on or about the 10th day of the month following publication.

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## PROTECTING POST-WAR BRITISH TRADE.

**D**URING the past week an important step has been taken with regard to the safeguarding of the British motorcycle trade after the war. In effect a motorcycle section of the Association of British Motor and Allied Manufacturers, Ltd., has been formed. This association has as its principal objects the complete post-war protection of the British motor industry, and in the memorandum of policy issued the scope is clearly indicated. Amongst the first problems to be dealt with is in connection with the large number of motor vehicles of all kinds in use for naval and military service. Steps are being taken to prevent these being placed in a mass on the market, which would, of course, have a very serious and lowering tendency. Schemes have been put before the proper authorities, and, we believe, practically accepted, that will prevent this occurrence. Again, it is pointed out that the loss of goodwill caused by nearly all British concerns being employed on war work is a matter that must receive attention, and it is proposed that this shall be dealt with by the imposition of import duties either on a temporary or permanent basis, and not less than those hitherto imposed on corresponding British products by foreign countries. Allied nations are to receive preference, but a total prohibition or temporary total prohibition is suggested to apply to goods of enemy origin. In order that this scheme shall come into effect immediately after the cessation of hostilities, it is argued that temporary substantial duties shall be made applicable to all imported motor vehicles, their parts and accessories, so that there shall be no chance of free import after the present prohibition ceases. The association goes on to urge the abolition of heavy taxation of users of motor vehicles, e.g., high petrol taxes, licence duties, etc., as tending to limit the extent of available markets. Governments, municipalities and public bodies are urged not to accept tenders except from British and Colonial manufacturers after the war, whilst improvements are dealt

with in the preferential treatment of British goods entering self-governing dominions, it being necessary to distinguish clearly between goods of genuinely British manufacture and goods merely assembled on British territory. The prevention of dumping, it is proposed, shall be checked by the application of ad valorem duties, *any difference of the invoice value and the home consumption value being imposed as a sur-tax*. This is a most important point, for it will be seen that this association aims at preventing the foreign manufacturer bearing part of the increased duty. In other words, he will not be able to "under-sell" his home trade price. Say, for instance, the trade price of a machine is £50 in a foreign country and a tax of 33½ per cent. is imposed as a British duty, the manufacturer will not be able to cut down the trade price of his machine, and thus bear part of the tax himself, but will actually have to charge the British purchaser his full trade price, plus the imposed duty. This clause, we think, will be difficult to impose, but would undoubtedly be of assistance to English manufacturers. The scheme embraces very wide economical jurisdiction, such as greater credits from banks and an all-round improvement in the Consular service. With regard to the motor-cycling section of the association, it has been decided that there shall be no committee, every member taking part in the management. Subscriptions are to be on the basis of the weekly wage bill of the concerns interested, with £10 minimum and £100 maximum, and finally it is decided that only British-owned concerns are eligible. The active scope of the Allied associations will be watched with interest, and if the association receives definite backing from the Government, it should prove an extremely powerful body. It will be noted that there is one important omission. No proposal of any kind is made as to how factories erected on English soil after the war, and producing competitive productions, shall be dealt with.



# TYRE COMMANDMENTS

THE Firestone Tyre Co., of America, have issued ten commandments to motorcyclists, which contain some real gems of advice, such as: Fit the right size of tyre; don't overload; don't skid; don't

neglect cuts and punctures; don't expose to the light. A few of these our artist illustrates below, and also adds ten of his own, which, no doubt, readers will do well to abide by.

ASCERTAIN THE RIGHT SIZE AND TYPE OF TYRE



DON'T OVER-INFLATE, OR OVERLOAD YOUR TYRES, OR RUN YOUR WHEELS OUT OF ALIGNMENT.



DON'T SKID!

DON'T NEGLECT CUTS OR GASHES

As soon as you find you have a puncture, it is advisable to dismount and repair it, or, preferably, pretend you cannot and get someone to stop and do it for you.

Before replacing the cover, remove all tools used in its repair, such as tyre

levers, spanners, pliers, hammers, finger-nails, etc., from the inside. You may need them for another job. On the other hand, if left there they will soon work their way out through the cover, but this is tyresome and expensive.

Do not forget to inflate the tyre, according to maker's instructions, so hard that on a rough road you have to keep on performing contortions to make sure your back tyre is not punctured.

Do not expose your tyres to the light. Cultivate cat-like habits and sleep in the daytime and, if you are a photographer, your dark room will make an ideal garage.

Ascertain the right size and type of tyre for your machine. How foolish you would feel if you bought a couple of 7-in. Palmers for your Baby Tweeny two-stroke and found they would not fit.

Remember that if you have a hopeless burst miles from anywhere you can't—after exhausting your repertoire three or four times—generally get home by stuffing the cover with grass. So I have been told.

Carry spare tubes in tube bags, instead of in the foot of the sidcar mixed up with the collection of odds and ends which will never be of the slightest use, except to keep your passenger's mind on her boots and the recent rise in the price of leather.

Do not throw away old tyres. The saying "There's nothing like leather" is now superseded by "There's nothing like old tyres" for boot repairing.

When fitting a new, stiff cover which you have "ascertained to be the right size and type," remember that the use of unparliamentary language will not help you, and that bent tyre lovers, nipped tubes, not to mention valve holes that do not register, suffer no pain when you kick them, or use harsh words to them.

E.H.T.

Before repairing a puncture in the driving tyre of a sidcar outfit on a hot day, insist on your passenger—if this happens to be a lady—going for a long walk.



FIX YOUR PASSENGER'S MIND ON HER NEW BOOTS



DISMOUNT AND REPAIR IT!



A PAIR OF SEVEN INCH PALMERS FOR YOUR "BABY TWEENY TWO-STROKE"

COVERS MAY BE STUFFED WITH GRASS



THE OLD SAYING, "THERE'S NOTHING LIKE LEATHER," IS SUPERSEDED.



SEND YOUR PASSENGER FOR A WALK



## NEWS IN BRIEF.

### A Summary of the Week.

#### Lighting-up Time for Saturday, 17th February.

London	...	...	...	...	5.50 p.m.
Edinburgh	...	...	...	...	6.22 "
Newcastle	...	...	...	...	5.49 "
Liverpool	...	...	...	...	5.57 "
Birmingham	...	...	...	...	5.55 "
Bristol	...	...	...	...	6.0 "
Dublin	...	...	...	...	6.41 "

Lighting-up time in Ireland and Scotland is one hour after sunset, but the Scottish lighting regulations (vehicles) come into effect half an hour after sunset. Lighting-up time in England and Wales is half an hour after sunset.

*Moon.*—No moonlight this week-end.

#### CONTENTS.

	PAGE
Questionable Prosecutions...	345
Editorial	346
Tyre Commandments	347
Dynamo Lighting	353
Woman and Her Motorcycle	354
No More Petrol Permits, but Why Use Petrol?	360
Correspondence	364
Information and Advice	367

#### The Event of the Week.

**A** MOST important announcement was made last week by the Petrol Committee. After the present licences have expired, no further permits will be issued. The matter is fully dealt with on our centre pages.

#### Mine Host of "The Bear" Loses an Arm.

**T**HOSE motorists who, before the war, were frequenters of the famous Bear Hotel, Esher, will regret to hear that its popular proprietor, Mr. O. E. McGregor, lost his right arm in early January. A growth on the hand developed blood poisoning, and the arm had to be amputated to save life. Mr. McGregor is, however, extremely cheerful over his loss and very fit.

#### 3400 r.p.m. in 3 3-5th Secs.

**O**NE of the most interesting articles in yesterday's "Light Car and Cyclecar" deals with "The Wonders of Acceleration." A concrete instance is given of a four-cylinder A.-C. engine, fitted with aluminium pistons, jumping, when the throttle was suddenly opened fully, from 200 r.p.m. to 3600 r.p.m. in the extraordinarily short space of time of 3½ secs. It would be interesting to learn the record acceleration of single, V, and opposed cylinder motorcycle power units under similar conditions.

#### Car Owner-drivers Wanted on War Service.

**T**HE Royal Automobile Club makes an appeal for a number of non-combatant owner-drivers of cars for work on the business of the Ministry of Munitions in Manchester. Drivers for permanent duty are needed most; but in the cases of those who can only give a portion of their time, a joint sharing service can be arranged between two owners. A limited number of lady drivers for permanent or occasional duty is required, and there is also a demand for those who can undertake relief work for short periods of a few days or weeks at a time. Allowances will be made to permanent-duty drivers for car maintenance; petrol, oil, grease and tyres will be supplied to those undertaking daily service, and an allowance in lieu will be made to drivers on occasional service. Khaki uniform may be worn. Those willing to undertake any of the above duties are asked to write directly to the Secretary, Royal Automobile Club, Pall Mall, London, S.W.

#### Changes in Canadian Motor Cycling Law.

**C**ONSIDERABLE alterations are about to take place in the Canadian motorcycle laws. In future, motorcyclists will be required to display two number plates as is the case in England. On the other hand, the legal limit is to be raised from 20 to 25 m.p.h., whilst in all probability it will be necessary to fit dimmers when using headlights in towns.

#### Mrs. Hardee's New Vocation.

**M**RS. HARDEE, Secretary of the Woolwich Motor Cycling Club and an ardent motorcyclist, has accepted a post as forewoman to a well-known motorcycle manufacturing concern, where she will control the female labour of a department engaged upon part assembly. Mrs. Hardee, who is one of the best-known ladies in the motor-cycling world, informed a correspondent of MOTOR CYCLING that she expects to take up her duties on 1st March. We wish her the best of luck in her new venture.

#### The Motorcycle Supersedes Street Sweepers.

**P**ERHAPS the record in novel duties performed by a motorcycle is supplied from Los Angeles, where, it is reported, a machine is used as a road sweeper. A 5 ft. revolving brush is placed in front, controlled by a lever which will raise or lower it at the discretion of the driver. A cylindrical drum, into which the dirt is swept, is provided, having a capacity of 4 bushels, and controllable from the driver's seat, so that its load can be dumped into the street at any place or moment. These "dumps," again, may be gathered up and dropped into a trailer attached at the rear of the machine, holding about 40 bushels. The machine works well on all surfaces, and could be copied here with great advantage at a time when refuse collection presents a serious problem to the authorities.

#### Second-hand Machines.

**O**CCASIONALLY machines left at garages, the owners of which have been lost sight of, are offered for sale at tempting prices by the garage proprietors. Such transactions may be perfectly bona fide, and the sellers may have every intention of holding the proceeds of such sales at the disposal of the owners, should they ever turn up. These sales, however, are very liable to lead to trouble and involve purchasers in litigation, notwithstanding the fact that the sales are apparently good in law. A large number of machines are now stored in the lock-ups of garages, the proprietors of these establishments holding the necessary authority to dispose of the machines on behalf of the owners now with the Colours. In negotiating such transactions, it is advisable to obtain from the garage the name and address of the real owner, in order that one may be reassured regarding the position of the garage in the matter, and also to receive the necessary guarantee that payment to the agent closes the transaction so far as the purchaser is concerned.



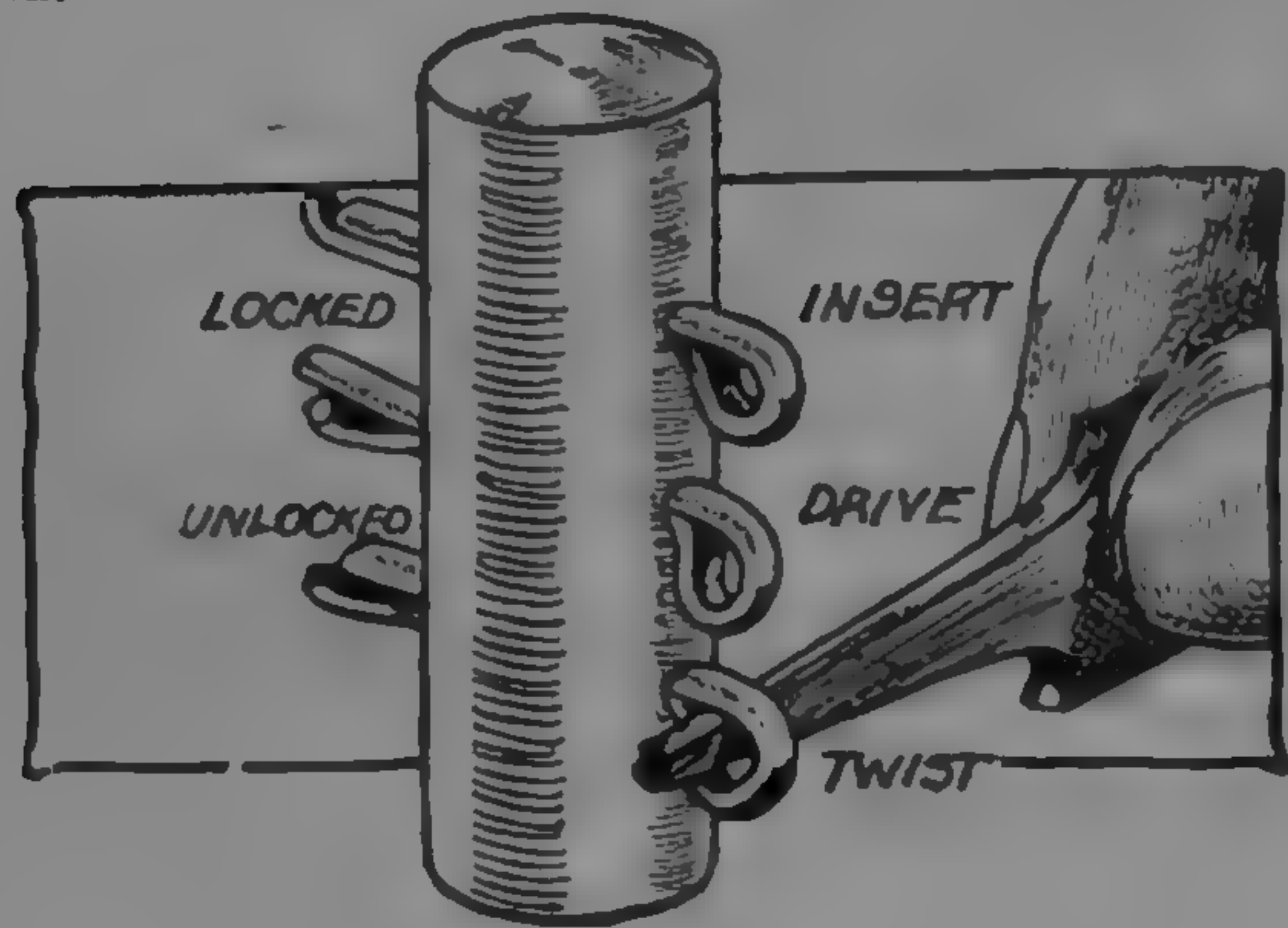
Necessary with exposed generators in cold weather: an improvised muff for the water container, in order to prevent freezing.



News (contd.).

**A Useful Cotter Pin.**

EVERY motorcyclist is aware of the difficulties which are met with when removing or replacing the ordinary split pin. It is always a difficult matter either to insert a screwdriver between tightly-closed ends when the pin has been pushed through nut and bolt or vice-versa, closing up the end sufficiently to allow the pin to be withdrawn by the head. In order to overcome this difficulty, Messrs. Brown Bros., Ltd., of 22-34, Great Eastern Street, London, E.C., have introduced a split pin known as the Hammerlock. It will be seen that both ends are shaped in a novel manner. Consequently when the pin is inserted and driven into position the open shank projects below the lower, thus securely locking the pin. When it is required to withdraw the pin a screwdriver, the tang of a file or other suitable instrument is inserted in the eye, a twist withdrawing the top shank to its normal position, consequently permitting the pin to be withdrawn.



The ingenious cotter pin known as the Hammerlock, recently introduced by Messrs. Brown Bros.

**Lodge Output Commandeered.**

MESSRS. the Lodge Sparking Plug Co., Ltd., regret to announce that in future they can only supply home demands for their plugs when orders are accompanied by "A" or "B" Munitions of War Certificates, as the whole of their output henceforth is to be reserved for Government requirements.

**Norton Repair Work Checked.**

MESSRS. Norton Motors, Ltd., regret to state that, until further notice, no repair work on their machines can be undertaken by them, on account of the great pressure of work placed upon them by the Government, involving the whole of their plant and energies. A limited quantity of spares can, however, still be supplied by the concern.

**Change of Name.**

MESSRS. Nicole, Nielsen and Co., Ltd., of 14, Soho Square, London, and Watford, makers of the well-known Watford speedometers, will henceforth trade under the name of North and Sons, Ltd. This concern has now added the manufacture of magnetos to its activities. Mr. R. B. North will continue to preside over its interests in his capacity of governing director.

**Bowden Products Held Up.**

MESSRS. Bowden Wire, Ltd., have to announce that they will be unable to fulfil orders for private purposes until further notice, owing to their resources being wholly claimed by Government requirements. They have certain goods in stock which can be supplied for replacements, and customers are invited to state their needs in this respect, when, if possible, they will be supplied, except in the case of complete air inlet fittings, orders for which cannot be fulfilled.

**Popular Power Units.**

ONE of the best compiled and informative booklets that has yet come into our possession is the brochure just issued by Messrs. J. A. Prestwich and Co., Ltd., of Northumberland Park, Tottenham, London, N., dealing with the 6 h.p. and 8 h.p. J.A.P. engines. The booklet is profusely illustrated, and shows in a perfectly clear manner the functioning of every part of the power unit, and contains a mass of valuable information which should prove of the utmost utility to the users of these popular power units. Instructions for the complete overhaul of the engine, valve timing, ignition setting, and other details form a large section of the booklet, which also contains an illustrated price list showing pictorially every part of the two power units. It can be obtained post free from Messrs. Prestwich, and it should certainly be in the hands of every J.A.P. engine user.

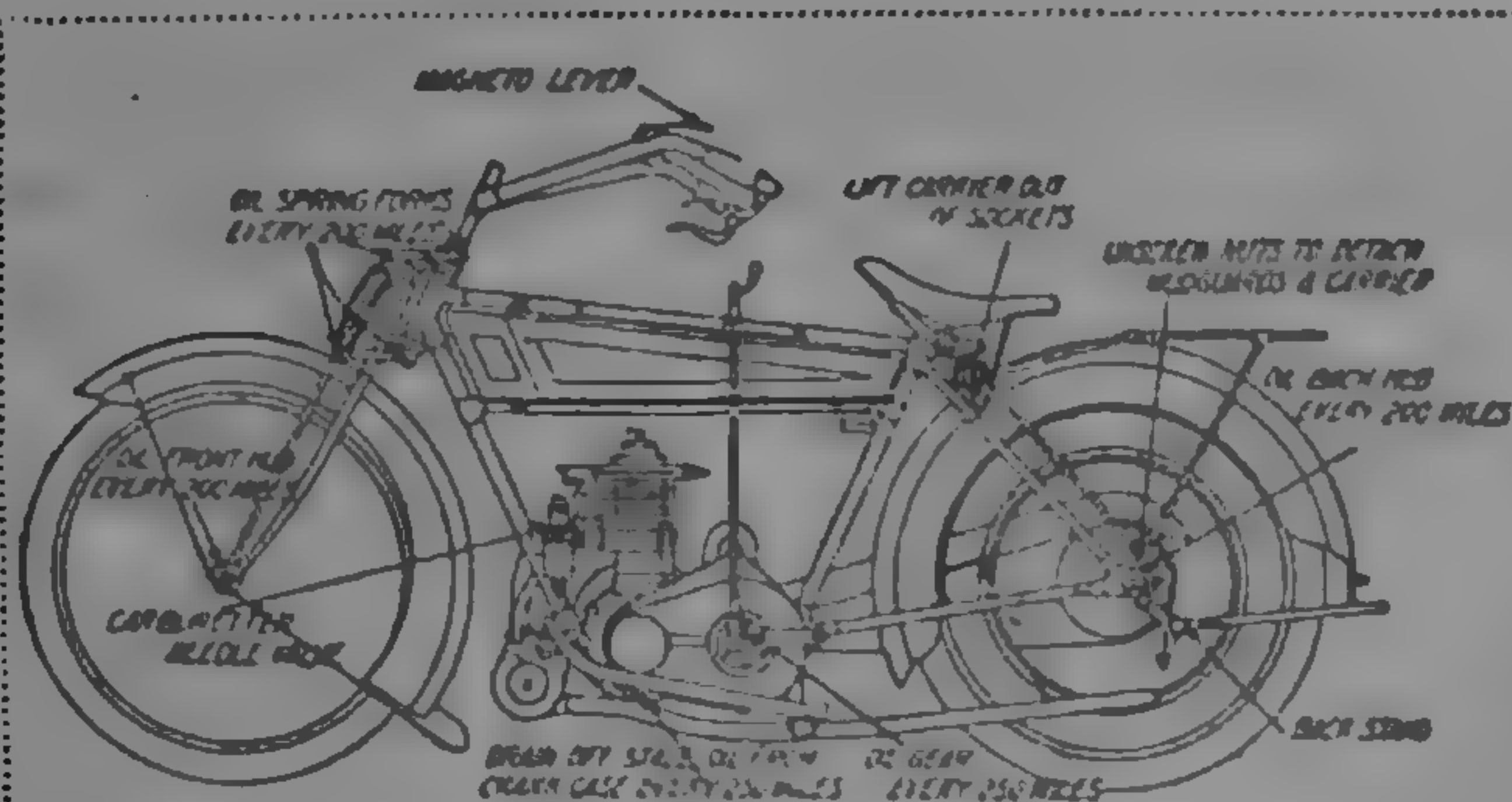
**Prices Up in U.S.A.**

THERE is an increase of from 10 to 15 per cent. in tyre prices in the United States.

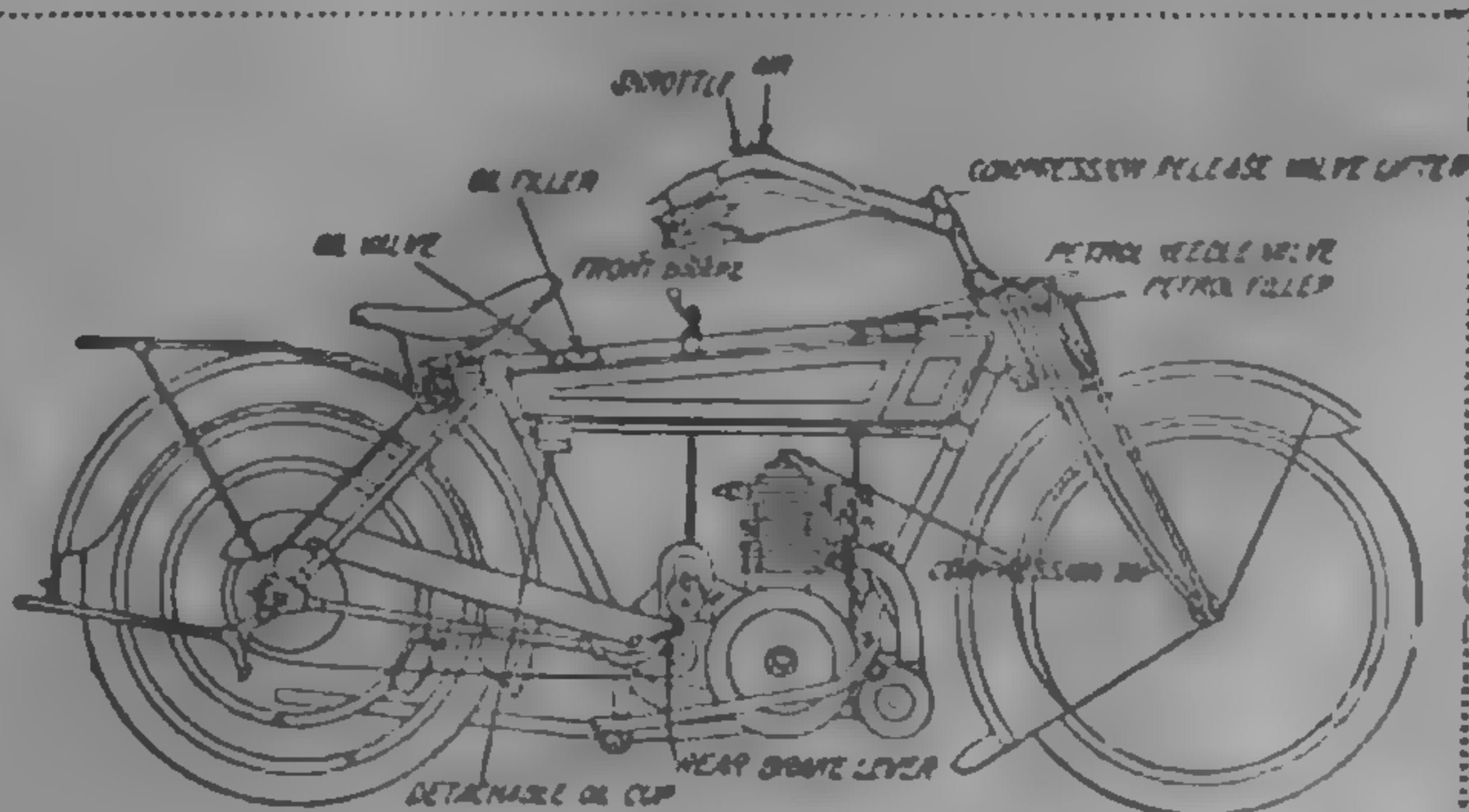
**The Enfield Two-stroke Booklet.**

A MOST attractive and instructive booklet dealing with the Enfield 2½ h.p. two-stroke for 1917 has been issued by the Enfield Cycle Co., Ltd., and will be supplied on application to this concern at Redditch, or their London offices at 48, Holborn Viaduct, E.C. The brochure almost comprises a treatise upon the two-stroke engine, and the veriest novice could hardly go astray with this little booklet to guide him in his treatment of the machine. Clear, large illustrations and diagrams render the letterpress instructions easily comprehensible, and a number of useful hints are supplied which

could be applied to other two-strokes beside the Enfield. A very needful and welcome feature is the parts list, in which illustrations of parts, numbered to correspond with the numbers of their titles, appear on the opposite page to that on which they are catalogued. Thus a difficulty often experienced by novices, that of describing accurately a part which they need, is overcome. The booklet, which is very neatly and attractively bound in strong blue cartridge paper, should be in the hands of every Enfield two-stroke rider.



View of the 2½ h.p. Royal Enfield from the gear side.



View of the 2½ h.p. Royal Enfield from the fly-wheel side.



News (contd.).

## Douglas Catalogues.

**W**E have still a large number of copies of the 32-page Douglas Advertisement Supplement which appeared in our New Year number. A copy will be sent post free to any reader applying to these offices.

## Motor Transport Volunteers Meeting.

**B**Y permission of the Lord Mayor of London, a meeting of the Motor Transport Volunteers will be held at the Mansion House on 13th February, at 5.30 p.m., with the object of securing new members and more subscriptions and vehicles, in view of the increasing demands made upon the resources of this Service. The speakers will include General Sir Horace Smith-Dorrien, G.C.B., D.S.O., Lieut.-General Sir Francis Lloyd, K.C.B., C.V.O., D.S.O., G.O.C. London District, and Sir John Lister Kaye, honorary president of the M.T.V.

## Petrol Committee's Ineptness.

**W**E have made many rightful complaints with regard to the doings of the Petrol Control Committee, but its last effort shows that the unsatisfactory state of affairs which was apparent at its inauguration has been by no means bettered. It will be remembered that the Committee announced that after the 24th January no further petrol licences would be issued. Since that date we have received numerous complaints from readers, who, in making proper application to the Committee before the 24th January, have subsequently received a reply stating that no more licences were available. In other words, the Committee made no effort whatsoever to keep their correspondence up to date in order truly to ascertain the number of licences which were applied for before the date in question. We have a case before us in which an officer who has just been discharged from the Services obtained a motorcycle, paid his Inland Revenue Tax and made an application to the Petrol Committee for a licence on the 19th January. After several applications he has just received an answer from the Committee stating that no more licences are available. It is nothing short of an insult that such a reply should have been sent, especially when the conditions of the application are taken into consideration. We have ourselves been in communication with the Committee but have received no satisfactory reply, and we are really surprised that after such a considerable period has elapsed since the inauguration of the Committee no more business-like methods pertain. (See centre pages.)

## Honours for the N. and D.M.C.

**I**N our issue of 30th January we referred briefly to the excellent patriotic work performed by the Newcastle and District Motor Club, which is the only motoring club in that

city affiliated to the A.C.U. and R.A.C. The secretary now further informs us that 12 of the Club's members hold commissions in H.M. Forces, 35 are serving in the ranks, and the remainder are all either over age or engaged upon munition or other work of national importance. A number of Military Crosses and other honours has been conferred upon members. An interesting fact is that two enthusiastic members were among the first Territorial regiment—the Northumberland Hussars—in action in the war, one of them, Trooper Jake Garson, who succumbed to wounds received during the retreat from Antwerp, being the first Territorial killed in the war.



On the Continent, where the petrol restrictions do not matter a "continental"—a D.R., an officier de liason, filling up in a town between Paris and the Front

## The Scooter Scare.

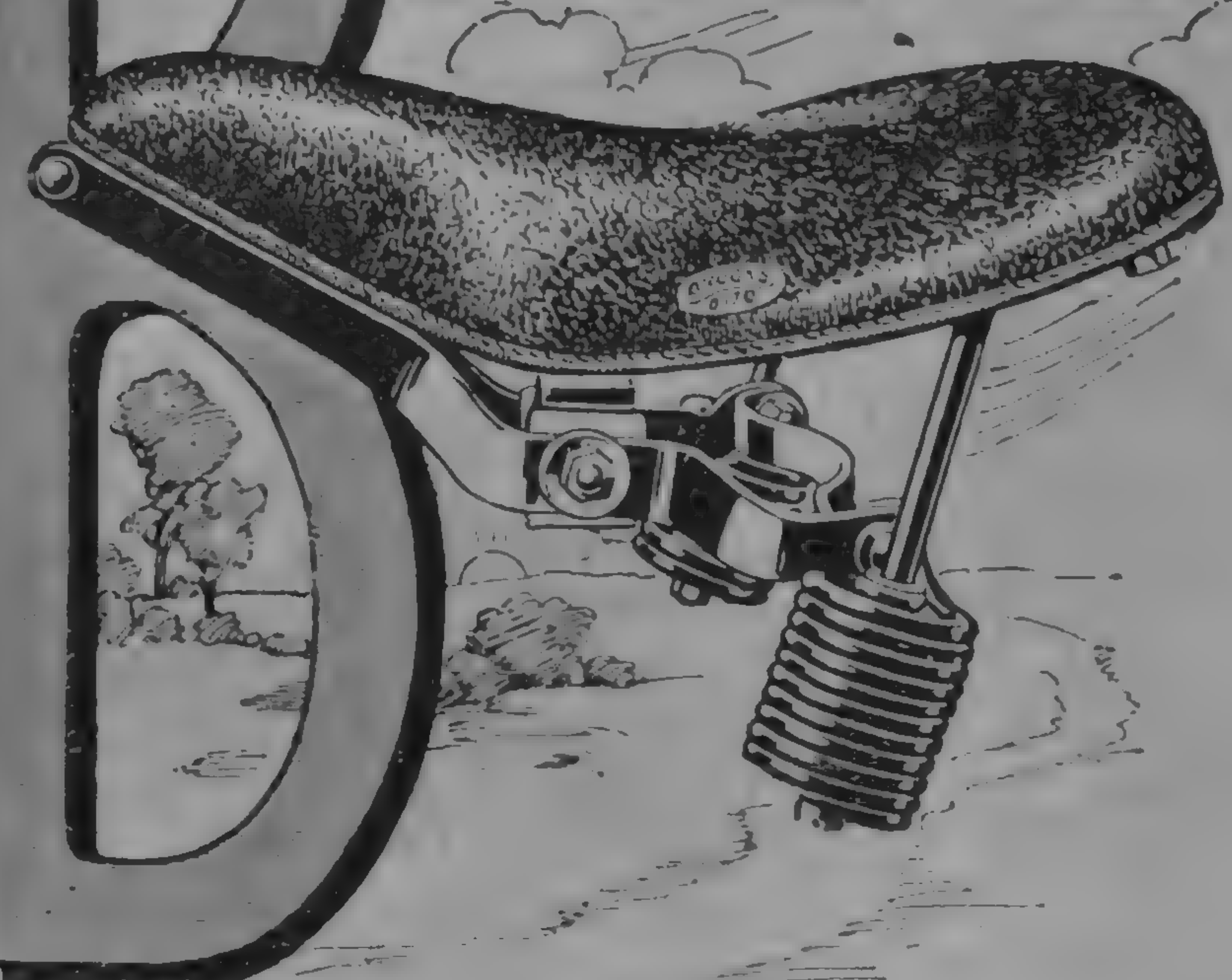
**A** NERVOUS contemporary, discussing the future of the motor-scooter, suggests with horror that the new "toy" may prove a public danger if once it gets into the hands of children. Fortunately, the age limit for driving licence issue precludes toddlers of a really inconsequent age from flinging themselves into the new pastime to our destruction, but we may look for a reign of terror shortly, when reckless "scooterers" of fourteen and fifteen will be dashing wildly up and down our quiet parks and our crowded pavements, leaving behind them on all sides death and destruction, in much the same manner as that well-known menace, the boy with the roller-skate, but with far more serious consequences owing to the greater weight and power of their mounts. We can imagine the awesome spectacle of a hundred or more of these devastators, mounted on powerful scooters, suddenly released from school and let loose among the terrified public. Having the terror in view, perhaps it would be wise to limit the use of the scooter to sedate ladies and gentlemen not under eighty, and thus nip the danger in the bud.



A picture of efficiency; a model Signal Coy. in the Southern Command. It will be seen that all the machines are Douglases. These boys issue their own journal, "Sparklets," which well upholds its title.



# DROOKS



In the early morning, with a long ride and the whole day before you, you appreciate the BROOKS because—

You know its comfort, so apparent then, will last throughout the ride, no matter what its length may be, and serve you just as well on the last mile as the first—

That's confidence entirely justified and one reason for the universal popularity of the — BROOKS.

**J. B. BROOKS & Co., Ltd.,**  
77, Criterion Works, BIRMINGHAM.

## Blackburne

*The Single with the Outside Flywheel.*

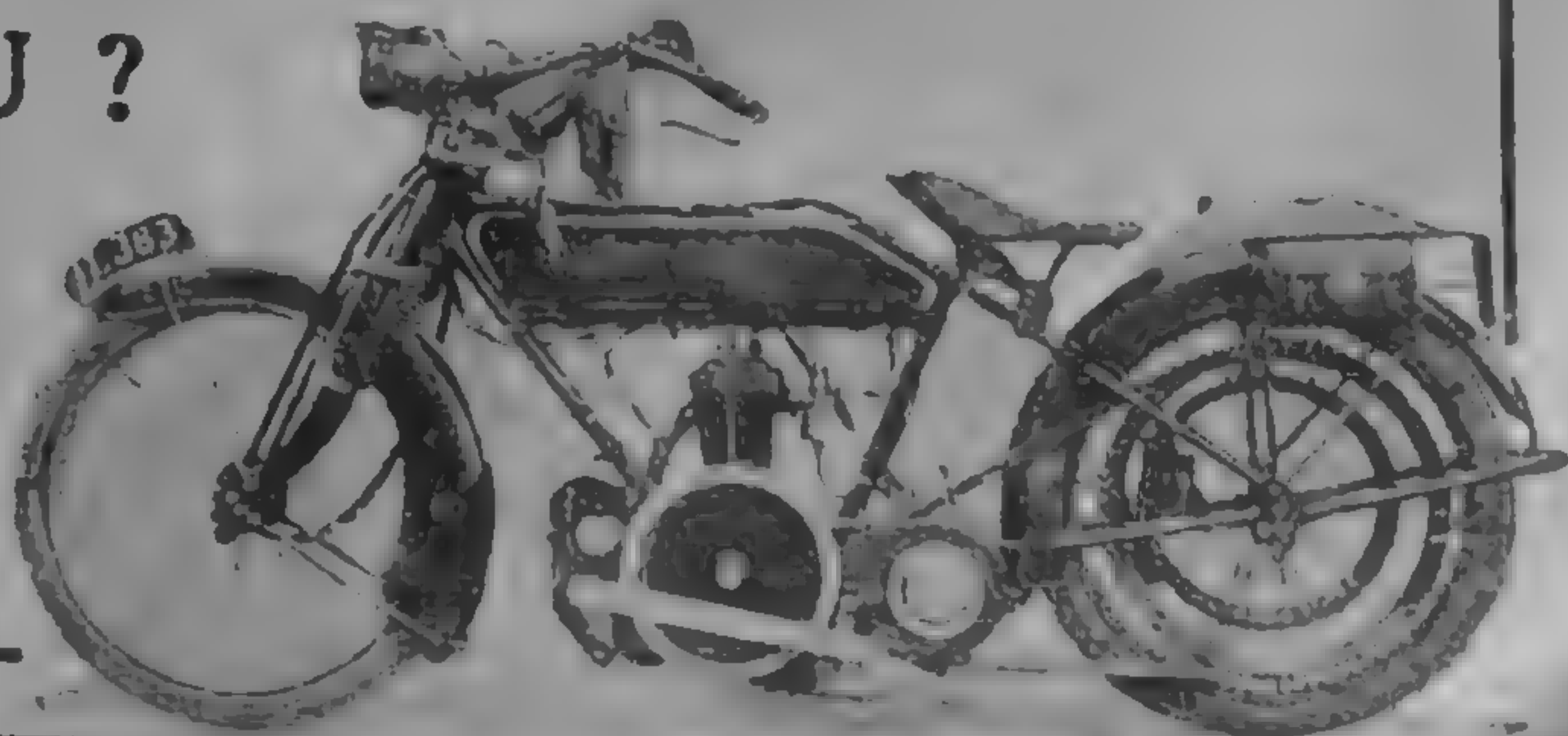
### Motorcycles par Excellence

We sympathize with those who are waiting because, owing to Government demands, the manufacture of these machines is in abeyance, yet we surely do not ask your patience vainly. We have a steadily growing waiting list, and First come, First served.

### HOW ABOUT YOU ?

Our vast experience is at your disposal.

**BURNEY & BLACKBURNE, LTD.,**  
TONGHAM, . . . SURREY.



#### Horse Power:

3½ (85x88=499c.c.).

#### Specialities:

Detachable cylinder head.  
Solid Crankshaft.  
Heavy outside flywheel.

#### Gear:

Sturmey-Archer 3-speed countershaft with kick-starter.





**KEMPSHALL**

**WAR MAP  
COMPETITION**

1<sup>ST</sup> Prize 4 Covers  
 2<sup>ND</sup> " " 2 Covers  
 3<sup>RD</sup> " " 1 Cover

*Write for Particulars*

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The KEMPSHALL TYRE CO. (of Europe), 97-98, Long Acre, W.C.  
 Telephone—244 Gerrard (2 lines). Telegrams—"Stodless, London."  
 Cambridge St. Rubber Works, Manchester; also at 200, Denngate, Manchester



## News (contd.).

## L.A.C. Annual Report.

IN presenting the annual report, the Lancashire Automobile Club refer to the impossibility of such a large club keeping in touch with all its members now serving in H.M. Forces, and appeals to such members to forward their names and addresses for the purpose of enrolment on the Club's Roll of Honour. The report shows that 57 members up to date have joined the Services, four of whom have been killed.

## Motor-cycling Menials.

A GOOD deal of resentment is being shown among motorcyclists who have joined the A.S.C., M.T., and are now quartered in large, empty houses in the suburbs of Kent, on account of the monotonous and degrading duties which they have to perform. Scrubbing floors and sweeping paths form the chief of these, and some of the men have been in this position for two or three months, never having even seen a motor of any kind, despite the fact that they are skilled mechanics and fitters.

## International Trials Rider Married.

MANY readers remember Lieut. Reg. G. Parker, Motor Engineers, M.T., A.S.C., of St. Ives, Hunts., as a famous pre-war International Trials rider and winner of the Rumanian Road Record, Bucharest, Sinaia, in 1913. His marriage to Miss Evelyn May Simpson, youngest daughter of the late Captain P. E. Simpson and Mrs. Simpson, of Bridlington, was solemnized recently at Christ Church, Bridlington. The wedding was of a very quiet character owing to the war. After the honeymoon Lieut. Parker will resume his duties as workshop officer of the A.S.C. at the Front.

## Matchless Machines for Russia.

MESSRS. COLLIER and Sons, Ltd., of Plumstead, makers of the famous Matchless machines, have received another large order from the Russian Government for several hundred of their machines.

## "We Need More Men" (I)

A CORRESPONDENT of MOTOR CYCLING who is single and absolutely ineligible for the Services sent in his name for substitution for Government office work in November last! He specified for a small salary. Up to the present moment he has received two communications, each inquiring whether his services are still available! He is now wondering if the demand for ineligible men to fill funk-holes is as great as is supposed by most people.

## Wounded Men Entertained by Manchester Motor and Cycle Trades.

A MOST successful entertainment, consisting of a concert and high tea, was provided for 560 wounded soldiers by the motor and cycle trades of the Manchester district recently. The event took place at the Nell Lane Military Hospital, Withington, and, beside the huge company which sat down to tea, 140 men who were unable to leave their wards had their share of the excellent meal brought in to them. A most successful concert was given by various well-known artistes, among whom appeared Miss Lilian Braithwaite, and all present took part in an interesting competition to estimate the number of steel balls inside a bottle, 36 prizes being awarded. Replying to a vote of thanks to the subscribers and organizers, Mr. Tom Garner, Chairman of the Local Section M.T.A., who presided, said it was the least the motor trade could do to try to discharge the debt owed to those who had done so much at the Front.

## How Non-combatants May Help.

## Rules and Regulations of the N.M.V., Including a List of Motor Squadrons now being Organized.

MOTORCYCLISTS will be interested to learn the official status of the National Motor Volunteer Corps, as recognized and approved of by the authorities, who now appeal to all motorists not already on active service to organize a corps of Volunteers in each county. The regulations are as follow:—Each member must swear allegiance on joining up, which oath binds him to come up for service in conjunction with the other Volunteer forces in the event of an invasion, for purposes of defence. Otherwise, his services are purely voluntary. Grants of petrol to enable him to carry out his duties will be made. He must supply his own uniform, which is only to be worn when actually on military duty or at ceremonial regimental functions. Officers may wear ordinary Army or Territorial uniform. Uniforms for members in the ranks may be obtained through their local Territorial Associations, for, approximately, the sum of £2 15s.

overcoats being extra. A corps may be formed without formalities, on application to the Lord Lieutenant of the county, the local Commandant, or the local Territorial Association. Units may consist of a motor squadron, comprising 56 cars and 20 motorcycles, or a heavy squadron, consisting of 24 lorries, 8 cars, and 12 motorcycles. The only expenses are those incurred in the purchase of kit and petrol to carry members to and from their drills or meetings. If called out for service, the corps would be paid at infantry rates and billeted or rationed as members of the regular Army. Motorcyclists desirous of obtaining further information should purchase a sixpenny booklet on the subject issued by the Central Association Volunteer Regiments, Judge's Quadrangle, Royal Courts of Justice, London, W.C., or a copy of the latest 1917 Army Council instructions regarding the Volunteers. We append a list of the motor squadrons at present being organized:—

Corps.	Address for Communication.	
	Name.	Address.
BUCKS (High Wycombe) .. .. .	Captain J. T. Bell ..	Tudor House, High Wycombe.
CAMBRIDGE .. .. .	A. R. Hill, Esq. ..	Grata Quies, Guest Road, Cambridge.
CARNARVON .. .. .	G. A. Humphreys, Esq.	Mostyn Estate Offices, Llandudno.
DENBIGHSHIRE .. ..	D. MacNicol, Esq. ..	Derwas, Abergelle.
DORSET .. .. .	T. Lynes, Esq. ..	Midland Bank Chambers, Dorchester.
DURHAM (Sunderland and District) .. ..	J. Emerson, Esq. ..	34, Bridge Street, Sunderland.
ESSEX .. .. .	H. Wrightson, Esq. ..	Felix Hall, Kelvedon.
FLINT .. .. .	F. Llewellyn Jones, Esq.	Flintshire N.M.V., Mold.
GLAMORGAN .. .. .	Sir John Courtis, J.P.	Prudential Buildings, St. Mary Street, Cardiff.
HANTS (Southampton) ..	W. P. Brazier, Esq. ..	Avondale, Portwood Road, Southampton.
HEREFORD .. .. .	Dudley Smith, Esq. ..	South Bank, Hereford.
HERTS .. .. .	The Secretary .. ..	28, Market Street, Watford.
LANCASHIRE (Blackburn, Blackpool and Fylde, Liverpool, Wigan, Southport, Bolton, Darwen, Burnley, Manchester, Preston, St. Anne-on-Sea) .. .. .	J. A. Rlghy, Esq. ..	5, Elbow Street, Manchester.
LEICESTER .. .. .	F. B. Roberts, Esq. ..	Portland Shoe Works, The Newmarket, Leicester.

Corps.	Address for Communication.	
	Name.	Address.
LONDON REGIMENT .. ..	G. F. Doland, Esq. ..	Room No. 5, Polytechnic, Regent Street, London, W.
LONDON VOLUNTEER RIFLES SQUADRON ..	Capt. R. D. F. Paul ..	C/o Temple Press Ltd., Rosebery Avenue, London, E.C.
MIDDLESEX (North London Squadron) ..	A. R. Sheet, Esq. ..	33, Alexandra Park Road, Muswell Hill, N.
MOTOR TRANSPORT VOLUNTEERS .. ..	C. R. Freemantle, Esq. ..	11-12, Silver Street, E.C.
NORTHUMBERLAND (Newcastle-on-Tyne) ..	Lieut. A. E. George ..	South Street, Newcastle-on-Tyne.
STAFFS. (Stoke-on-Trent) .. .. .	W. H. Brain, Esq. ..	Springbank, Barnston, Stoke-on-Trent.
SUSSEX .. .. .	H. W. H. Palmer, Esq. ..	72, Station Road, Bexhill-on-Sea.
SURREY (Reigate and Redhill) .. .. .	W. J. Dayrell-Steyning, Esq. ..	Brooklands, Batt's Hill, Redhill.
WARWICK (Birmingham) .. ..	F. Bowers, Esq. ..	5, Holborn Chambers, Broad Street, Birmingham.
YORKS. W.R.—Bradford .. .. .	A. J. Hill, Esq., M.P. ..	Halifax Commercial Bank Chambers, Bradford.
Doncaster .. .. .	E. W. Jackson, Esq. ..	Higbeliffa, Doncaster.
Huddersfield .. ..	E. Hoyle, Esq. ..	Glen House, Huddersfield.
Leeds .. .. .	Alderman C. H. Wilson ..	5, Park Row, Leeds.
Sheffield .. .. .	J. E. Bennett, Esq. ..	29, Fargate, Sheffield.
Wakefield .. .. .	H. O. Sykes, Esq. ..	Oakfield, Horbury, near Wakefield.



## News (cont.).

## Glass on the Roadway.

A DISGRACEFUL attitude of mind was revealed in a case at Liverpool recently, when a motor agent was fined for strowing glass for 9 yards along the highway. It was reported that accused had remarked that it was "good for trade."

## Petrol Imports Up.

IN January the quantity of motor spirit imported was 13,001,740 gallons against 4,100,858 gallons in December. The quantity imported in January this year, as stated above, compares with 6,985,279 gallons brought into the country in January, 1916, and 6,984,339 in January, 1915.

## End of the War?

MR. JOHN HODGE, M.P., Minister of Labour, stated last week: "I do not think I am giving away any secrets when I say that the heads of our Army and the Allies have recently been in conference, and their determination is, if possible, to end the war at the end of this summer."

Shall we have a motor show this year? asks "The Light Car and Cyclecar."

## Purists and the "Motor."

THE New York "Sun" refers, in a recent issue, to the efforts of English language purists in America to purge the American tongue of some of its Yankeeisms. "Motor," by which our friends over the water mean "engine," is apparently a stumbling block: the American motorist stubbornly refuses to refer to his power plant as an "engine." The Society of Automobile Engineers has, however, issued an edict showing that the term "motor" is altogether misplaced. As a well-known car engineer points out, a motor is merely a means of transforming a certain type of energy into power, and "motor," therefore, is not sufficiently specific. So "engine" it will have to be, and that is that.



B-r-r-r! What we have all been enduring last week. Here's to its speedy passing.

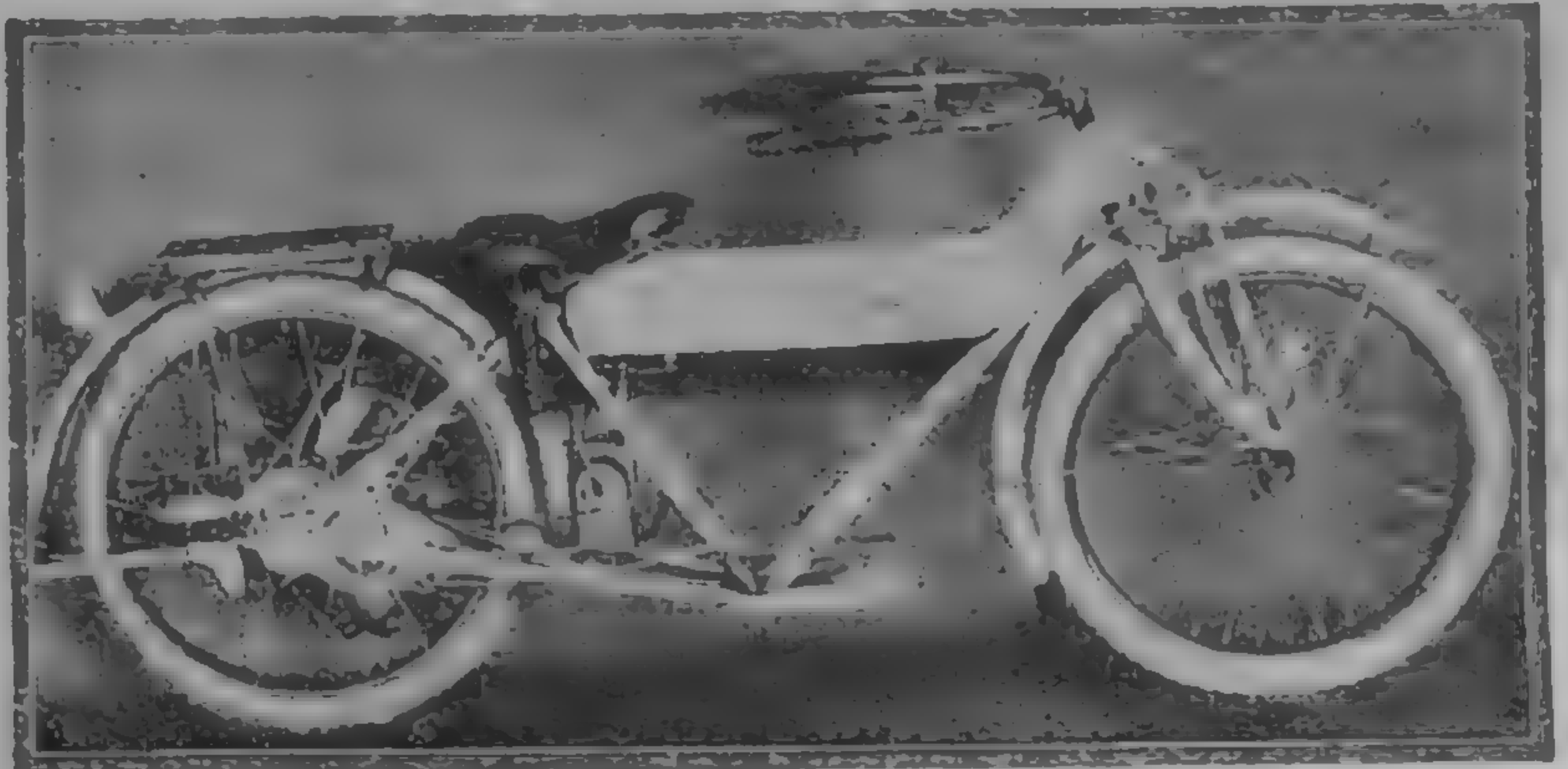
## The M.T., A.S.C., Comforts Fund.

THE Comforts Fund for men in the A.S.C., M.T., organized by our sister journal, "The Commercial Motor," has now reached £15,000 in money alone. An average outlay of but 3d. per man per month runs away with £1000 in that period, however, and the hon. sec. and treasurer, Mr. E. S. Shrapnell-Smith, 7-15, Rosebery Avenue, London, E.C., will be glad to receive further donations.

A14

## America's Automobile Bill.

SOME astounding figures are quoted by the "Scientific American," which organ estimates the amount spent annually by Americans on automobilism at £340,000,000. On a basis of 50 gallons per car, petrol accounts for £68,000,000 of this sum—a nice little fuel bill! It may be even larger, as 50 gallons is a very small yearly allowance average.



The latest from America. It will be seen that the machine is provided with a three-cylinder rotary power unit contained in the back wheel. Place this power unit in the conventional position and we should say it would have great possibilities. ["Motor Cycling," U.S.A.]

## An Oilfield in Britain.

IN the course of a lecture given recently to the Institute of Petroleum Technologists, Dr. Forbes Leslie stated that an important and practically inexhaustible source of mineral oil had been proved to exist in Norfolk. The lecturer also referred to the vast quantities of oil contained in the Norfolk shale deposits, but did not make any statement as to whether or not this shale contains petrol. As the formations resemble those of the Scotch shales, however, from which petrol has been extracted, there is reason to believe that large quantities of this spirit are available in Norfolk. Apparently, no plans have been formed yet for developing these vast fields, which, if up to expectations, should be of immense value.

## The American Factory.

REFERRING to the output of American motor products, a writer states that the new floor space occupied in motor production in U.S.A. would equal a factory 100 ft. wide and 18 miles long.

## Another Bombshell.

LAST week the Petrol Committee issued the following notice to the Press. The whole matter is extensively dealt with on our centre pages:—

"The Petrol Control Committee regret to announce that they are no longer able to consider applications for the renewal of existing full-duty motor spirit licences for private motorcars and motorcycles unless the holder of the licence is engaged upon work of national importance, and the continued use of a motorcar or motorcycle is essential for such work."

## Norton Wins Australian Road Race.

THE 68-mile Northam to Perth road race—the only big event of the year in Western Australia—which was held recently, was won by Private H. Wann, on a 3½ h.p. Norton machine, his time being 1 hr. 30 mins. This would have been very much better if he had not had to go back for petrol 12 miles from the finish. The machine was the only Norton entered, and Wann secured a very popular win. Curiously enough, his machine was the identical one on which the late F. C. Drury was killed while track racing at Fremantle last Easter.





### The Simplicity, Durability and Reliability of Electricity.

It is remarkable that such an amount of prejudice should still exist against this practically ideal form of lighting amongst motorcyclists. The writer does not propose to go into a fully detailed description of various lighting outfits, nor to give a lengthy treatise on the principles of electricity, but merely to explain a few points which may confuse the non-technical motorcyclist, who likes the idea of an electrically-lighted machine but fears the complications.

"Complicated" is a word often hurled at electric lighting outfits, but in reality they are much less so than they would appear to be at first glance. In a complete dynamo set we have merely an electric generator, driven by the engine, which supplies current via a "cut-out" to a battery of accumulators, which in turn supplies current, when required, to the lamps.

#### Don't be Afraid of the Dynamo.

Magnetos have lost their early terrors for the motorcyclist. He may or may not know why it produces a spark, but he does at any rate know that a drop of oil every few hundred miles is all this faithful friend requires. Why, then, be afraid of a dynamo? It only differs from the magneto in very slight respects. We all know the first principle of the magneto: that the cutting of the lines of force of a magnet by a coil of wire causes a current of electricity to be induced in that wire. In a magneto the current thus induced is magnified in pressure up to the region of 10,000 volts in order to cause it to spark across a gap; in a lighting dynamo the current is generated at a mere 4, 6 or 12 volts, but with a certain amperage. And so we get on to the point at which so many people stumble.

#### Measuring the Electrical Output.

An electric current may be likened to the flow of any gas or liquid. As an example, a much greater quantity of water will flow at the same speed through a 6 in. pipe than through a 1 in. pipe. The speed or pressure remains the same in each case, but the quantity of water delivered is greater with the larger pipe. Naturally, it is the same with electricity. The pressure of the current is measured in volts, and the quantity in amperes. Multiply the volts by the amperes and the result is the total value of the current in watts. To illustrate, a current of 3 amps., flowing at a pressure of 4 volts, is of the total value of 12 watts. So is a current of 1 amp. at 12 volts.

#### Measuring the Lamp's Consumption.

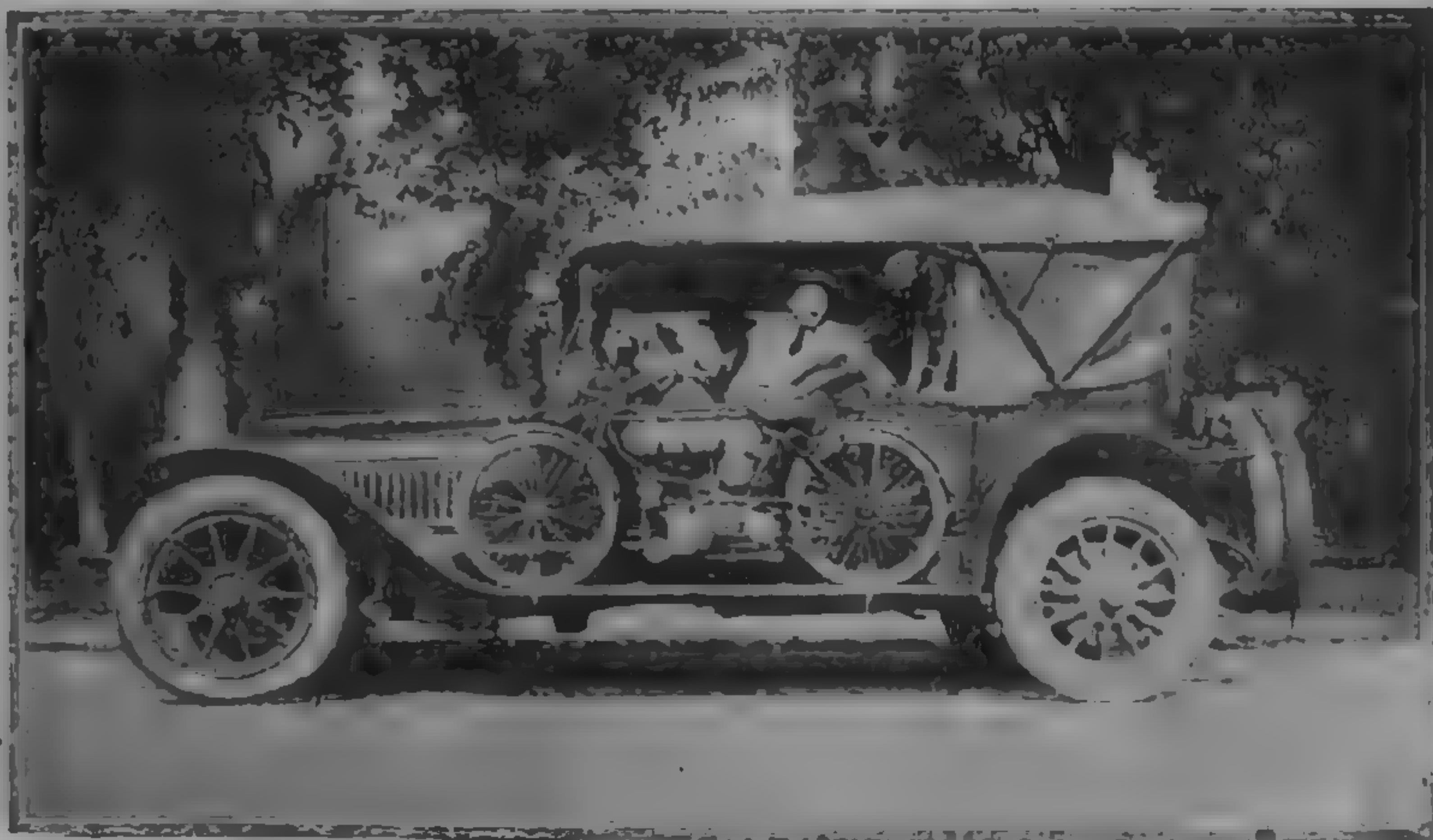
And now to apply these principles to the actual lighting. In the same manner exactly as we calculated the total value of the current generated, so we determine the amount of electricity which the bulbs we use in our head, side and tail lamps consume. Metal-filament lamps are, of course, the only ones used for head and side lamps nowadays, and their consumption is, approximately, 1 watt per candle-power. Thus, a 12 c.p. lamp requires a current of 12 watts. In our previous paragraph we showed how this quantity of current could be generated, i.e., by the sum of the volts and amperes totalling 12.

But here we have to consider the pressure of the current. It would be no use employing a 12-volt 12 c.p. bulb with current at 4 volts pressure, and it would be disastrous to supply 12 volts to a 4-volt 12 c.p. bulb. The bulbs used must be made for the pressure at which the lighting set generates. To obtain 12 c.p. on 4 volts we must use a bulb consuming 3 amperes at 4 volts, just as the same candle-power bulb would consume 1 ampere on 12 volts. The total current, or wattage, is the same in each case, only the pressure or voltage is different.

#### Choosing Bulbs.

It is, by the way, one of the points argued against electric lighting for motorcycles that these metal-filament bulbs are very delicate. So they are, to a certain extent, but in choosing them, the shorter the

(Continued on page 355.)



How motorcycle sales are pushed in the States. The method of Paul Derkum (who it will be remembered competed in the last T.T. on an Indian) to demonstrate the capabilities of the Cleveland two-stroke to dealers who live wide distances apart.



# WOMAN AND HER MOTORCYCLE

*A Feature for*  *Feminine Riders*

THE MILITARY NOTE  
—WAR SERVICE  
FOR WOMEN.

THE . . .  
TRAVELLING  
DIFFICULTY.

READERS may remember that, a few issues ago, I suggested a sort of adaptation of the naval and military costume as a suitable apparel for lady motorcyclists. Apparently, the Postmaster-General (or whoever is responsible for the large amount of stationery consumed in all Government offices) reads MOTOR CYCLING with an eye to tips, for his henchwomen in the Stationery Office have very practically accepted my suggestion. Here they are, as Judy said to Mr. Daddy Long Legs, driving one of H.M. Stationery Office delivery cars, and I am sure I have no need to assure the lady on the right-hand side how very chic her costume à la Flying Corps appears.

Pamela writes to me that she is now worrying the life out of her *bonne* over the alteration of a discarded British warm, in which, complete with riding breeches and pale yellow putties sprouting out of the ends of them, she hopes shortly to tear the hearts out of those members of our gallant Services addicted to motor cycling up and down the Portsmouth road and other fashionable motoring localities. A British warm, which really is warm, makes a great appeal during this Arctic spell, and few types of overcoat could look smarter on a lady motorcyclist of practically any height. Talking of putties, a good plan for those who dislike them, or gaiters of any sort, is to wear a pair of pink silk stockings underneath the normal ones when riding in cold weather. The difference in warmth is more than appreciable, and the ankle retains its gainly proportions thus covered.

The smartness of leather leggings has long been a temptation to me, and recently I stormed a boot shop for them, but a few steps round the shop soon showed what cruel wear they are to unprotected ankles. The stiff leather edge cuts into the flesh and renders walking a torture. Having a constitutional dislike of any form of boot or ankle restriction whatever, the stiffness and constraint of leggings would annul any satisfaction I might derive from their appearance: doubtless, however, when worn with boots they become pliable in time.

## War Service for Women Motorcyclists.

Now that the new Military Service Bill promises a heavy recruiting during 1917, it is interesting to conjecture whether or not a similar comb out will not be effected among women some time before next New Year.

418

Though thousands of women are nobly doing war service here and abroad, there is room for comprehensive recruiting among the feminine community as well as the masculine, and the difficulty will be, as with the Army in the early days of the war, to relegate each worker to a position most suited to her special qualifications. Fortunately, organization has reached a wonderful state of efficiency here at last, and the sweep-out of men leaves a wide field to be covered by women workers in the coming year. The new motor agricultural movement presents possibilities to every woman motorcyclist, and it is quite likely that the latter will be more in request than any other type of worker, voluntary or recruited. This is certainly a war of motors, and the war carries its effects far beyond the actual military or political zones, as is demonstrated by the demand for commercial motors of all kinds and for all purposes. Openings of this kind should be numerous for the lady motorcyclist with a fair knowledge of motor mechanics; trade delivery, farm work, and especially farm overseeing on large holdings where a motorcycle or small car is necessary to cover the distances; telegraph delivery in scattered districts; home sidecar ambulance and wounded transport work, etc., all present opportunities for feminine labour, and especially for women with some knowledge of motor mechanics. Hitherto, of course, the placing of women in such posts has been rendered unnecessary by the number of exempted men still clinging to various classes of service as their own particular property.

Before the new and far-reaching Military Bill, however, the dog-in-the-manger attitude must necessarily vanish, and women, instead of being looked upon as grasping intruders, as in the case of the recent mail van driver dispute, will find their services welcomed and even solicited.

## The Travelling Difficulty.

The railway restrictions are, perhaps, more irksome to the business woman than anybody. Advanced beyond belief in many ways as they are, women still fall behind in the matter of physical strength, and the constant fights for a seat or standing room in crowded vehicles and the long waits, often in cold and rain, for conveyances, tax them very severely. The courteous spirit which formerly existed between London travellers seems to have disappeared



War work for women motorists. Fair drivers of H.M. Stationery Office A.-C. three-wheelers.



Count the Indians on the road.

# Indian

Motocycles.

Distinguished  
Fast and Silent.

HENDEE MANUFACTURING CO.

"INDIAN HOUSE," 368-368. EUSTON ROAD, LONDON, N.W.  
Telephone—Museum 1648. Telegrams—"Indian, Enroad, London."

AUSTRALIA 109-113, Russell Street, Melbourne.

CANADIAN WORKS 12-14, Mercer Street, Toronto.

AFRICA—

Indian House, 127-9, Commissioner Street, Johannesburg.

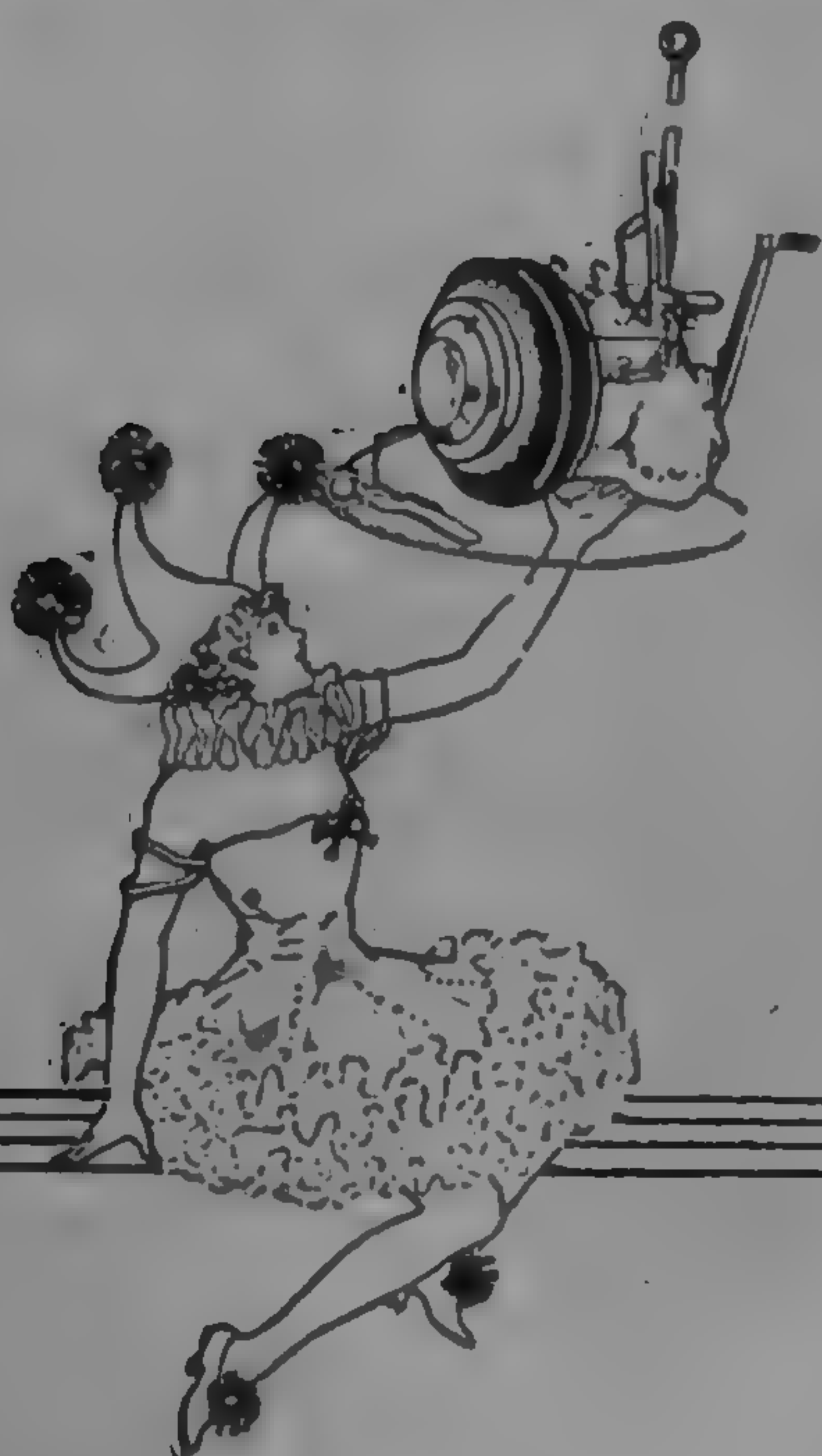
Indian House, 579, West Street Durban.

We have a few Indian  
Parcelcar Bodies,  
suitable for almost any  
sidecar chassis.

We are offering these ■  
an extremely low price,  
£3 net, F.O.B. London.

# STURMEY ARCHER

## COUNTERSHAFT GEAR



When the boys come home  
from the war they will  
tell you what the  
Sturmeley Archer counter-  
shaft gear has meant to  
them. When it is over  
you will have the chance  
of knowing what it means  
to you. Till then, just  
note the address, Sturmeley  
Archer Gears, Ltd.,  
Nottingham.



# CHATER LEA

□ □ □ □ □ LTD.

are wholly engaged on urgent war work of microscopic accuracy. The experience thus gained will still further enhance Chater Lea post-war productions.

74-84, BANNER STREET.  
LONDON, E.C.

ESTABLISHED 1891



## New Edition Now on Sale

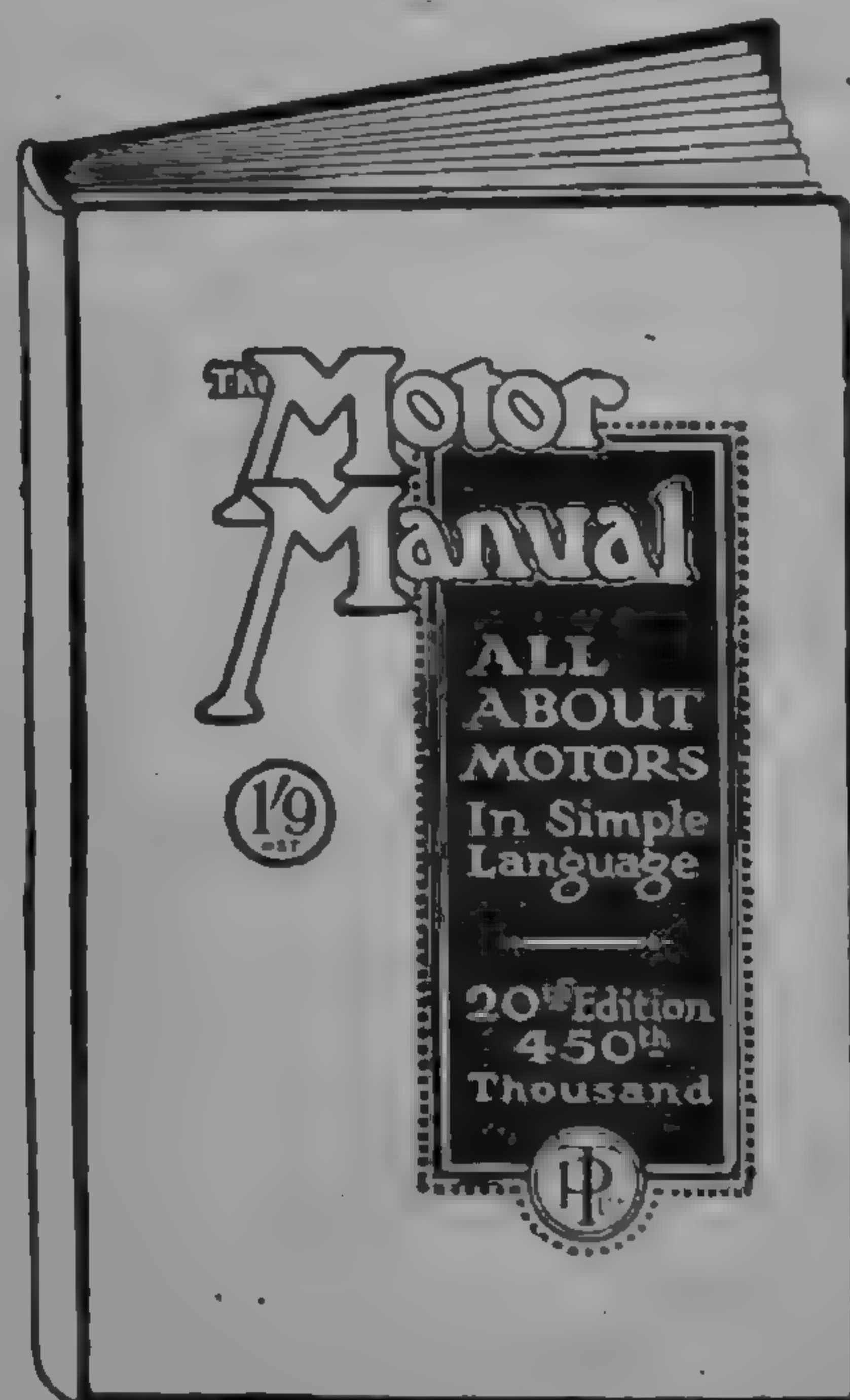
Every motorist who wishes for a handbook giving the very latest information on every subject connected with the car should buy a copy of the 20th Edition at once.

1/9 NET

Post Free, 2/1

TEMPLE PRESS LIMITED,  
7-15, Rosebery Avenue, E.C.

Wholesale:  
B. J. Larby, Ltd., 30, Paternoster Row, E.C.





## Woman and Her Motorcycle (contd.).

entirely before the difficulties created by a topsy-turvy system, and the tired business woman, returning home late and fagged from office, is often involved in something very much like a hooligan struggle on her return journey.

Cycling and motor cycling to and from business are obvious remedies for this unpleasant state of things, but the former must in most cases, unfortunately, be ruled out through time shortage. The motorcycle remains to preserve us from an untimely death, one evil night or morning, beneath the feet of a typical "get-in-or-die" crowd at station or bus terminus. The motorcycle, particularly the sidecar outfit, as a means of regular conveyance is cheap, reliable, and fast. A suggestion recently put forward in "The

Motor" that owners of cars should co-operate with others so that the car in each case may be used to its fullest capacity on business journeys, may be applied to the sidecar outfit. Two girls living in the same district could arrange so that the one should drop the other at her business premises every morning, then proceeding to her own premises, and repeating the arrangement at night time. Costs, thus shared, would compare favourably with the increased railway fares. A further advantage which this method has to offer is that the driver and passenger are conveyed from door to door: an advantage which the writer, knowing full well, to paraphrase Henley,

"How the light, light bus has wings to fly  
At suspicion of a fare."  
puts forward as one of worth.

BOADICEA.

## OCCASIONAL THOUGHTS—Safety First.

THE campaign which is being vigorously pursued by the big traffic combine particularly appeals to the motorcyclist, and the adoption of the slogan and all that it conveys is to be strongly advocated. To ride safely does not mean to exercise so much caution as to take the joy out of riding, nor does it mean that you must never give the engine open throttle. The safe rider is the man who adapts himself to the circumstances and does not shut his eyes to those circumstances. To give an example or two. When you want to overtake a tram on the off side and there is another tram on the other track coming towards you, don't open out and take a chance of getting through if there is the slightest risk of getting squeezed between the two cars. If a dog tries to make a meal off your legs while you are riding, don't turn in the saddle to enjoy the sport—you might run into an obstruction. It isn't really clever, although it may be spectacular, to show the fair occupant of your sidecar how brilliantly you can thread in and

out of the traffic. She may be shivering in her shoes all the time. It is sure to focus people's attention if you ride "hands off" with a bland expression of disregard on your face, but more than half the people who look at you think you're a fool—and you are.

On the open road you can be speedy without losing sight of the "Safety First" idea. If you must "take him on," and he beats you, don't blind past him in a village and fancy you've won—he might have seen the policeman, if you didn't. Don't send the speedometer needle round the dial if you have a weak spot in your front tyre, because if it does happen to burst, you'll know all about it.

It may be a hundred to one that the corner is clear when you go round on the wrong side, but the hundredth chance comes in its turn, and you can't change your mind when you're within a yard or two of an oncoming car. The safe rider may not be quite so fast as the reckless one, but he wears better and lasts longer.

L.H.C.

## DYNAMO LIGHTING (Continued from page 353).

filament and the better it is supported the longer it will last.

A carbon-filament bulb is sturdier, but consumes 3.4 watts per candle-power as against the 1 of the metal filament. However, for a tail lamp, where very little light is required, a carbon-filament bulb of low candle-power will be quite satisfactory.

## Accumulator Treatment.

A lighting set, in order to be of use whilst the machine is stationary, must include an accumulator. The word to many people recalls the bad old days of motor cycling when the root of all trouble on the roadside was traced to that sulphated bag of mystery. It was housed in a rattly tin box, which it usually did not fit, and therefore soon developed leaks. Do not strafe the modern lighting battery on account of the faults of its predecessors, but see that it does not lose its acid, and place a voltmeter across its terminals occasionally and see that it registers nearly 2.5 volts per cell.

Its capacity is usually indicated on its side: "4-volt, 20 amp.-hour" means that, fully charged, it is capable of delivering a current of 1 amp. at 4 volts pressure for a continuous period of 20 hours. That means it will keep a 4-volt 4 c.p. metal-filament bulb (i.e., consuming 1 amp.) burning for that length of time.

The discharge rate of an accumulator should not exceed 10-15 per cent. of its capacity. So if you have two 4-volt 4 c.p. sidelamps and a low candle-

power tail lamp on your machine, the battery should be of about 20 amp.-hour capacity.

## Have Good Wiring.

There is one more point which makes for no trouble with electric lighting, and that is the wiring. It must be flexible, and the more strands the better. The insulation should be of good quality and thoroughly watertight, and a metal outside casing is all to the good. Joints and connections should be soldered and well taped.

Finally, carry a spare bulb. A wooden case with a screw-on case can be obtained for it, and it will be quite safe if not allowed to jolt about in the toolbag. Remember, we sometimes had to renew a burner with acetylene.

D.H.N.

## I. OF A.E. MEETING.

A meeting of the London Graduates of the Institution of Automobile Engineers was held on 25th January, when Mr. P. A. Williams read a paper entitled "Some Calculations in Automobile Engine Design," Mr. L. H. Pomeroy being in the chair. Amongst the points dealt with was that of compression, in which the author, referring to some tests by Dr. Watson (proceedings I.A.E.), pointed out that the compression curve lay somewhere between the isothermal and the adiabatic curves, showing that some heat during compression was lost to the cylinder walls, giving an exponent lower than the adiabatic exponent for a perfect gas, viz., 1.4.





## A Diary of the Open Road.

**I**T is wonderful how, at times, a little detail will give a lot of trouble. Take, for instance, the little matter of securing a gudgeon pin—and is there anything that superficially looks simpler? Yet I rather fancy every old hand you meet has a pet tale to tell of an elusive little set-screw that would not remain happy until it had obtained its freedom. The cracking of a piston or the fracturing of a cylinder was generally the result of its mad career during release. Manufacturers made frantic efforts and strived for years to eliminate this everyday occurrence, but little success came their way until, I believe, the Triumph Co. hit on the idea of discarding the set-screw and making the gudgeon pin a driving fit in the piston. This wise method other manufacturers soon copied, and it remains the general practice to-day.

As this, then, is the eating of the pudding one cannot very well question its success, but, on the other hand, progress is a factor that permits further consideration to be given to any vital point, so it may be discussed under this heading. When a gudgeon pin depends for its security upon a driving fit, there is little doubt that the driving home of the pin distorts the piston. The only means of rectifying this appears to be by pressing the opposite sides of the piston, which, obviously, cannot give a great deal of accuracy, especially when it is remembered that a piston is always ground true to a thousandth. Ten or twelve years ago this was of little importance, as cast-iron pistons were crude affairs that distorted in any manner they wished, and cylinders were equally as bad. Under these conditions, a thousandth or two could be ignored, but not so now, when all these things are well understood and combated in a practical manner. Why, therefore, should not the gudgeon pin be brought up-to-date? What is required is a pin that may be taken out and replaced by even a novice, without fear of distorting, let alone cracking a piston, which at present is a frequent occurrence. Engine efficiency demands this and engine designers, I am sure, will give it to us, but in the giving it would be as well to watch the little side issues—bearing life and so on—which may be materially increased by allowing the pin to roll as it pleases, both in the piston and rod.

### The Fastidious D.R. and His Bars.

**I** WAS recently given an opportunity of inspecting a few hundred battered warriors

returned from the Front to the official repairers for renovation. They were in all kinds of condition, bound together by bits of wire, hoop iron or some other bit of scrap that happened to be handy to some ingenious D.R.; magnetos without armatures; saddles without springs; tank stoppers of rag; footrests made from bars of wood; toolbags and kits of special design; petrol filters from cartridge cases; rubber bands for fork springs; jam tins shaped for mud, belt and plug shields; silencers of every conceivable form; gear controls from pieces of bedstead and a thousand other strange devices, too numerous to mention. With all I was very much interested, but what impressed me most was the extent to which a D.R. would go to obtain his own particular shape of handlebar. He seems able to put up with almost anything in the form of other accessories but handlebars. They are different, and I candidly believe that, amongst the two or three hundred machines I saw, not two bars possessed the same bends—a woman could not be more fastidious over her millinery than the D.R. over his bars. Perhaps this is excusable when one remembers the roads over which he travels.

**T**HE repairing of these machines raises an interesting point which I have heard frequently debated in public, and especially where two or three motorcyclists are gathered together; that is: will the



An interesting corner of the C.A.V. works; the accumulator assembling department. Note the numerous flues which draw off the poisonous fumes that are given off during the soldering process.



## Cross-country Comments (contd.).

Government sell off these old machines at a ridiculously low figure, or what will become of them? That they will not be sold off is now obvious, for the manufacturers are turning them into new machines at about half the cost of the machine when actually new. What looks like scrap is really serviceable material and is used as such, and now no machine is beyond rebuilding. Of course, this greatly reduces new machine contracts, thus lightening the demand on the manufacturers, so much so, in fact, that, were it not for the present restrictions, hundreds of machines are manufactured and could be released for the British or export markets.

This state of affairs was anticipated in these columns some months ago when dealing with the probability of deliveries. To-day, were it not for the new restrictions, deliveries would be possible in large quantities.

IT is with pleasure that I notice the daily Press has taken up the matter of pedestrian lighting. Several months ago I drew attention to the danger

of flash lamps indiscreetly used by pedestrians. Since then the habit has grown tremendously, and now every "inquisitive kid" who can muster the few pence required to make the initial purchase shoots glaring rays in all directions. Only a few nights ago I averted what might have been a serious accident by sheer luck. In the distance I noticed two approaching lights, which after a few minutes disappeared. For about a hundred yards all was darkness; then, without the slightest warning, a white light appeared on my left. Thinking something had come out of a side turning, I jammed both brakes on and swerved sharply to the left to avoid it. In a fraction of a second I found myself violently checked by a stone fence about 4 ft. high, while a meandering couple unconcernedly flashed their lamps and gaped at my plight. Just what I said at the time I have no wish to remember, but I have little doubt that they will, for they silently disappeared without even a "good night." Of course, a pedestrian has every right to illuminate his way, and this right I do not dispute, but surely it is only reasonable for him to show the light constantly in the direction of travel, and, when on the roadway, to observe its rules.

COOEE.

## WHICH IS THE BEST ADVERTISEMENT?

Have You Tried for One of "Motor Cycling" 10s. Notes?—Just a Few Lines on a Postcard Wanted.

IN the issue before last the consensus of favour picked out the Kempshall and Harley-Davidson advertisements as proving the most attractive. We have very carefully gone through the numerous replies received and have decided to award a MOTOR CYCLING 10s. note to Mr. J. E. Thorpe, of St. Elmo, Porth, Glam., who, in picking out the Kempshall Tyre Co.'s advertisement, gives his reasons as follow:—

"It fills a whole page and cannot be missed; it is placed opposite reading matter which is never passed over; it combines effective illustration with

tration, setting, statement and inference mark it as the most effective advertisement of the week."

With reference to the Harley-Davidson advertisement, we have awarded a 10s. note to Mr. F. Mitchell, of 75, Hotspur Street, Newcastle-on-Tyne, his reasons being as follow:—

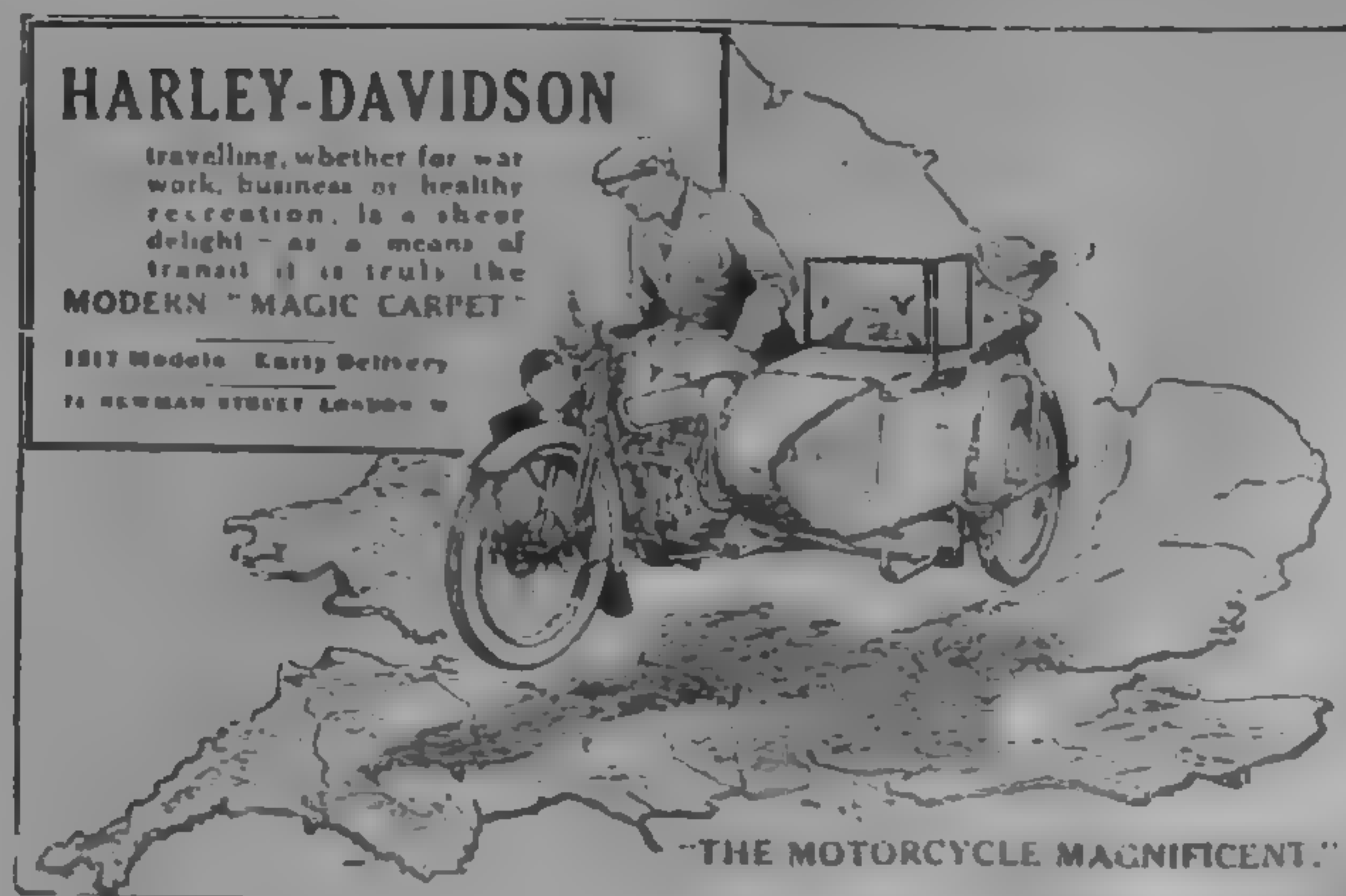
"The picture conveys the impression of speed with ease and comfort, thus truly interpreting the words 'magic carpet' used in the advertisement. It also vividly portrays the healthy enjoyment of motoring in a luxurious sidecar outfit which can be used in any and every part of this kingdom without anxiety as to whether or not hills will not be conquered. Another feature of the advertisement is the fact that one can ascertain at a glance the article being advertised."

We have also awarded as consolation prizes sparking plugs to the following readers:—Mr. F. G. Clarke, W. E. Postlethwaite, H. Percy Young, A. F. Perry, E. J. Bishop, H. Rowlett.

Pick out the best advertisement in this issue and, preferably on a postcard, state your reasons, forwarding it to the Editor not later than Monday next.

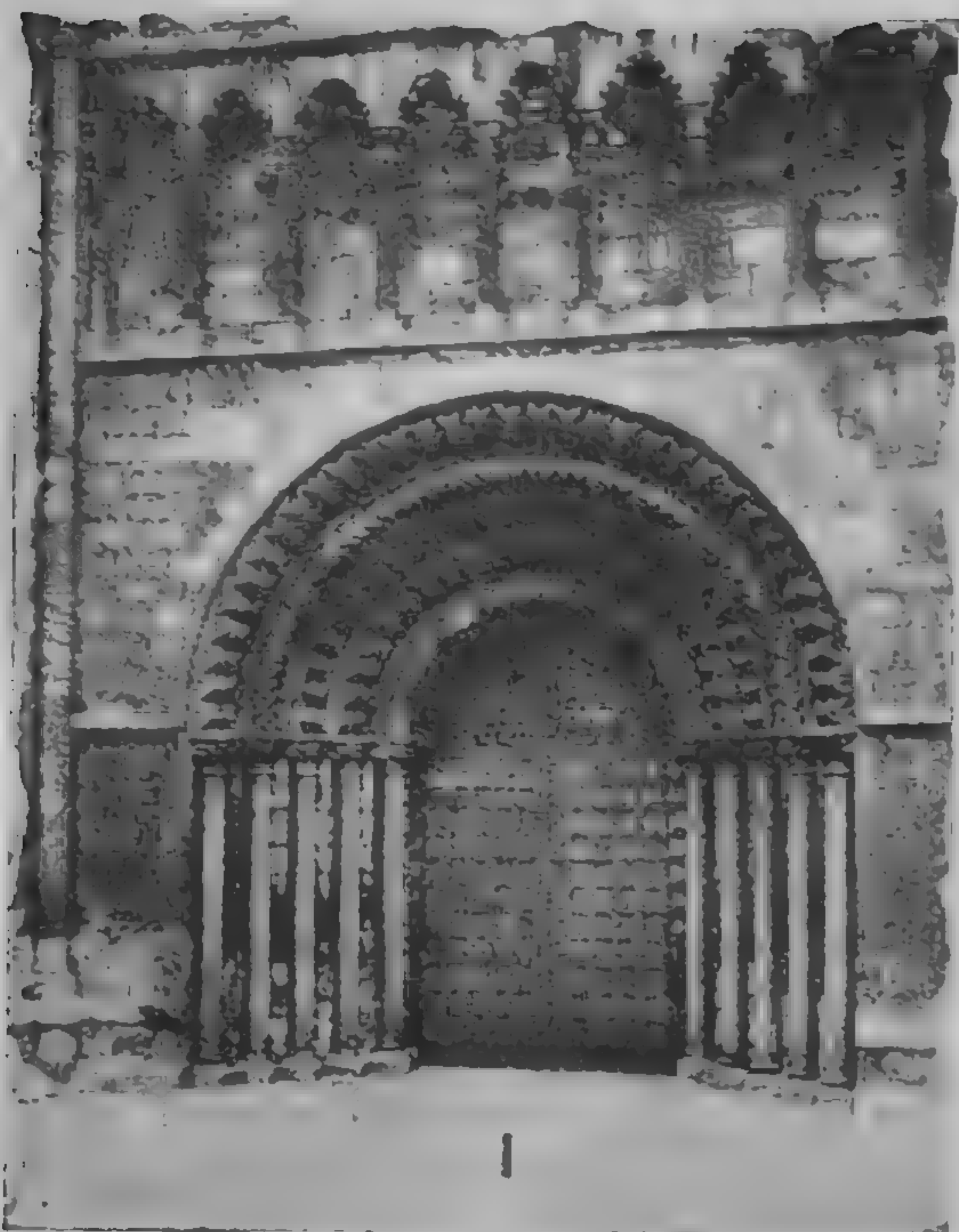


bold raised lettering; it tells the fine unsolicited testimony of the winner of the 'What is it?' competition and links an interesting fact to a sound business inference which must carry conviction to other tyre users. To sum up—its position, illus-





## A Page of Ecclesiastical Subjects



TO the motorcyclist there are many objects of interest in Yorkshire which he can see with a minimum of trouble and which will add zest to his runs. In every district almost the churches alone, for instance, have many associations with mediæval days and even earlier. In the accompanying pages of illustrations an effort has been made to show a few different types from a motorcyclist's portfolio of photographs mostly taken whilst on tour.

Illustration No. 1 is the west front of the Benedictine Abbey Church at Selby. The Norman doorway gives the key to the period in which this fine church was built. Of Royal foundation, it is regarded as one of the finest abbey churches in the country, and was founded by William the Conqueror in an effort to calm his conscience for causing the devastation of so large a part of Yorkshire. The hard-headed men of this county, a characteristic of their reputation to-day, did not take so kindly to the new régime as the proud Norman duke expected. Their hearts were still with the brave Saxon Harold, with whom they had

fought and conquered at Stamford Bridge, a few miles from Selby, but a brief period before the Battle of Senlac, near Hastings, where Harold lost his life and the Saxons their cause. There are many points of interest in the interior of the abbey, both ancient and modern, much of the latter having been added during rebuilding after the great fire of a few years ago. Selby is the traditional birthplace of King Henry I.

Sundials in our churchyards are often quaint and picturesque.

Illustration No. 2 shows the one at the south entrance of St. Mary's, the parish church of Richmond, Yorkshire. The old doorway (illustration No. 3) is the entrance to the rather gloomy crypt at





## A Page of Ecclesiastical Subjects (contd.).

Langley Abbey, Norfolk. This Premonstratensian house was built in 1198, and its church is renowned as being the burial place of many of the old Norfolk knights and their dames. Like several other monastic houses in this county, the abbey now forms part of farm buildings, which undoubtedly tends to their better preservation. Illustration No. 4 shows the market place of the small, ancient town of Howden, near Hull. It boasts a church of cathedral proportions, which is noted amongst architects and lovers of ecclesiastical buildings for its features of special interest which are only to be seen here.

best known works, including "Tristram Shandy," were written during his seven years residence in this quaint old house, which is pretty much in the same condition as when he knew it 150 years ago. In the company of his cat and favourite fiddle his existence was very happy here, and certainly he tells us that he lived on the fat of the land, so generous were his parishioners to the pastor they loved so well.

An old Norman font, to be seen in the churchyard at Bowbridge, the famous old coaching town on the Great North Road, is the subject of illustration No. 6. Moss-ridden and weather-beaten, it is quite a picturesque feature, and stands close to the principal entrance to the church.



Dedicated to St. Cuthbert, the patron saint of Durham, this edifice, now partly in ruins, was built by and formerly belonged to the Prince Bishops of Durham. In its perfect state it was of vast extent, and ranked as one of the noblest and most historic churches in the kingdom, for successive prelates added to its beauty and extent, till at the end of the 14th century it reached its greatest grandeur. The ruined part is seen in our illustration above the shops.

Shandy Hall, the home of the great novelist, Laurence Sterne, is seen in illustration No. 5.—It is nearly opposite the church at Coxwold, in Yorkshire, where he ministered as a clergyman. Some of his

About three miles out of Lowestoft on the way to Yarmouth is Corton Church, one of the ruined churches on the Norfolk coast; it is shown in illustration No. 7. The greater part is a picturesque ruin. It is still used, however, for public worship, the chancel having been restored and partially rebuilt. The fine 90 ft. tower built on the cliffs forms a familiar landmark to North Sea mariners.

Our last illustration is a modern font of exquisite design in the church at Slyne-with-Hest, near Morecambe. As will be seen, an angel holds forth the element in a shell-shaped receptacle. It was placed there in 1905 as a thankoffering by one of the residents in the village. HAROLD G. GRAINGER.

## THE "WHAT IS IT?" COMPETITION.

In order that the above competition shall not be further prolonged, we have decided to award the three competitors who are now trying for fourth position, Messrs. G. T. Thomson, E. A. Healey, and D. Nicholson, similar prizes, which will be forwarded to them in due course. The complete list of names is therefore: first, Mr. H. O. Hayes; second, Mr. R. G.

Granger, Beckenham; third, Mr. C. S. Madeley, Birmingham; tie for fourth as before-mentioned. In conclusion, we think we may congratulate ourselves upon this competition having been a great success, judging by the enormous number of entries received. We have had many letters from readers urging us to introduce a similar competition in the near future.



## PETROL COMMITTEE ANNOUNCE THAT NO MORE LICENCES ARE TO BE ISSUED.

**L**AST week the Petrol Committee made the important announcement that, after the expiry of the licences now in use, no further licences would be granted. The statement, as appearing in the daily Press, would tend to make the reader imagine that it would be impossible to purchase petrol after the 1st March, but this, of course, as we have constantly pointed out, is by no means so. Those motorcyclists who are in possession of the licence granting them the maximum of 4 gallons per month may rest assured that this licence will be available in any month of the year whilst the petrol regulations are in force, and is not merely available for, say, consecutive months until the allowance is exhausted.

MOTOR CYCLING was the first to draw attention to this fact that a licence was not intended for use in any named month or months at all, but was available for any month in the year. There is no need, therefore, for readers to purchase the full amount of fuel between now and March.

However, be this as it may, the motorcyclist is faced with the problem that the licence he now holds is the last one he will receive, be he a private owner and not engaged on Government or national service. In the latter cases, he will, presumably, be granted a further licence, but we have not been told who will decide the question as to what is national or Government work. We know very well that the

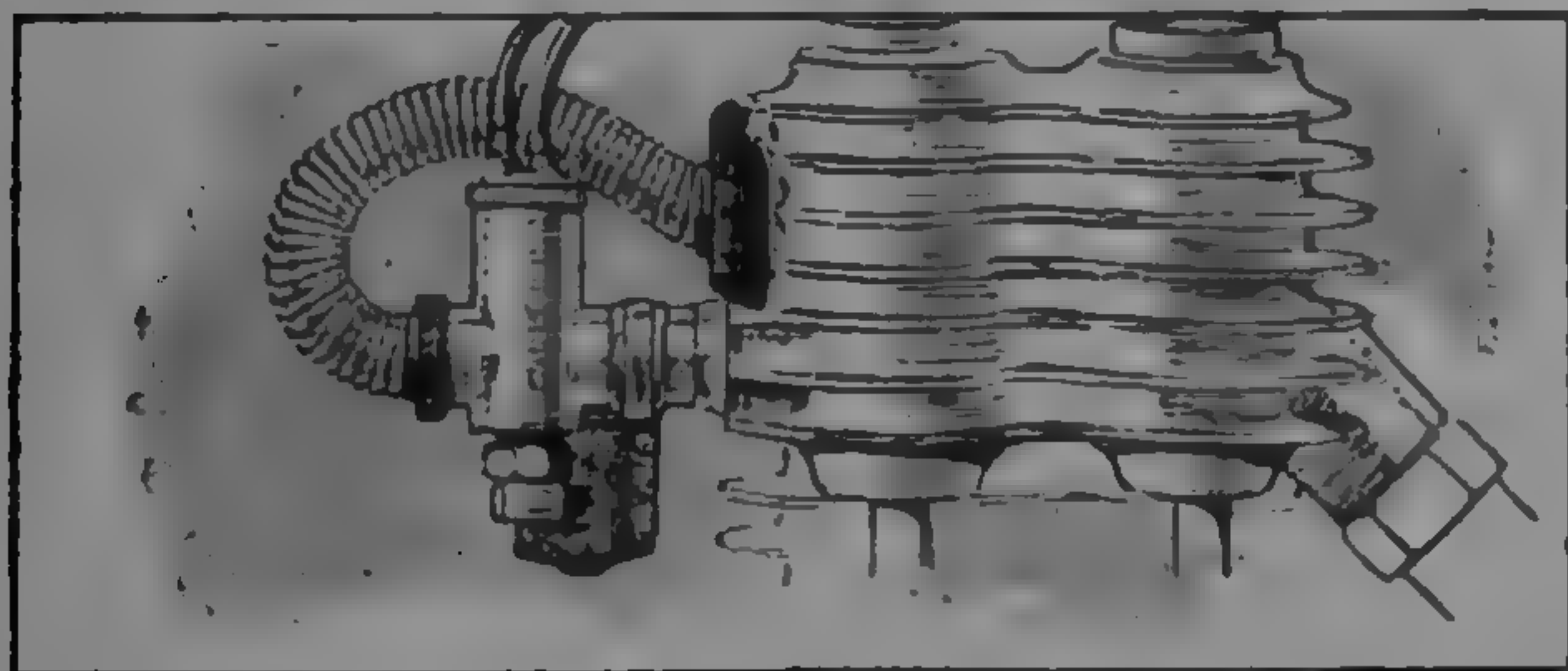


Illustration No. 2.—Supplying hot air.

Petrol Committee conceive it impossible for a man to use his motorcycle for purely business purposes, and we expect that motorcyclists will be treated in exactly the same manner when they point out that their machines are being used for work of national importance.

It is, of course, needless for us to point out the absolute necessity of hoarding the petrol available as granted by the current licence. There are several substitutes on the market, and if steps are taken to vaporize the fuel in one of the many ways possible, there is no reason why the motorcyclist should not carry on as before. On these pages we reproduce illustrations showing how heavy fuels can be vaporized, and we also publish the names and addresses of all suppliers of petrol substitutes which can be obtained without a licence, together with information giving conditions of supply.

### How to Vaporize the Fuels.

Referring to the illustrations, we have in No. 1 the first step that should be taken when using heavy fuels, and this consists of the insertion of a gauze cone, which should be of the finest possible mesh, into the induction pipe. It will be found that if a cone instead of merely a flat piece of gauze is interposed, far

better results can be obtained, as there is a minimum of throttling of the mixture, for, naturally, the area as represented by the cone is far greater than the small area presented by a flat piece of gauze. In

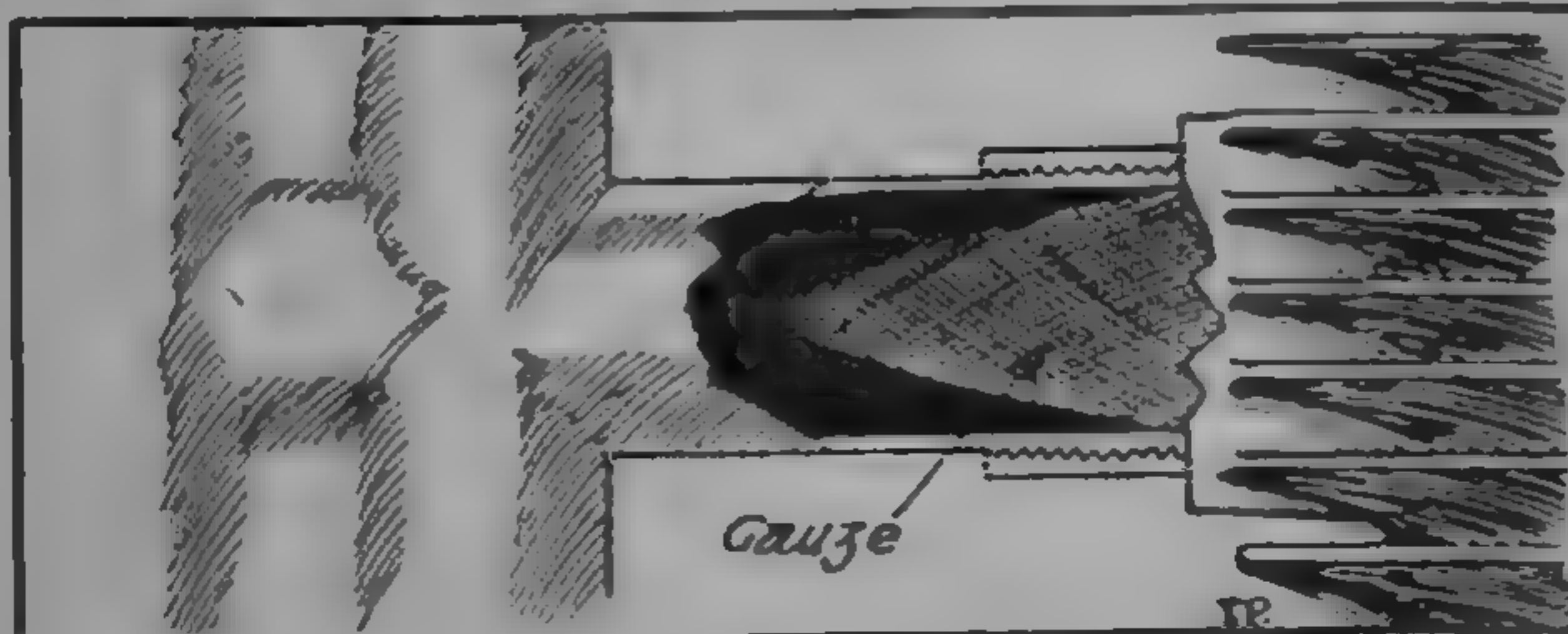


Illustration No. 1.—A gauze cone with induction pipe.

fact, no matter what further precautions are taken, we strongly advise the fitting of this gauze cone.

### Hot Air Intake.

What may be taken as the second step is shown in the second illustration. In this, flexible metallic tubing, terminating in a flat plate held by a bolt or bolts against the cylinder flanges, which acts as a muff, supplies hot air to the main air intake of the carburettor. In those instruments which are provided with a gauze dust cap, this gauze can be removed and the locking ring employed to hold the flexible metallic tubing to the carburettor. Where such tubing is unobtainable, it is possible to bend ordinary tubing, or obtain a section of an old pair of cycle handlebars of the desired shape.

### Assisting Atomization.

Illustration 3 shows a method of breaking up the fuel as it leaves the jet, and is specially applicable to those carburetters where a single jet is employed. It will be seen that a gauze sphere is formed round the jet, the latter nearly touching a disc which is soldered across as diameter of the sphere. This also could be used in modified forms on all types of carburettor.

In the fourth illustration, a more or less similar device is illustrated. In this case a cylinder closed at one end and open at the other is made of gauze and is slipped over the jet.

### The Necessity of Heat.

Heating the fuel before it reaches the jet is the subject of Illustration 5. A stop is interposed between the float chamber and mixing chamber, and a pipe (A), on the float chamber side of the stop (C),

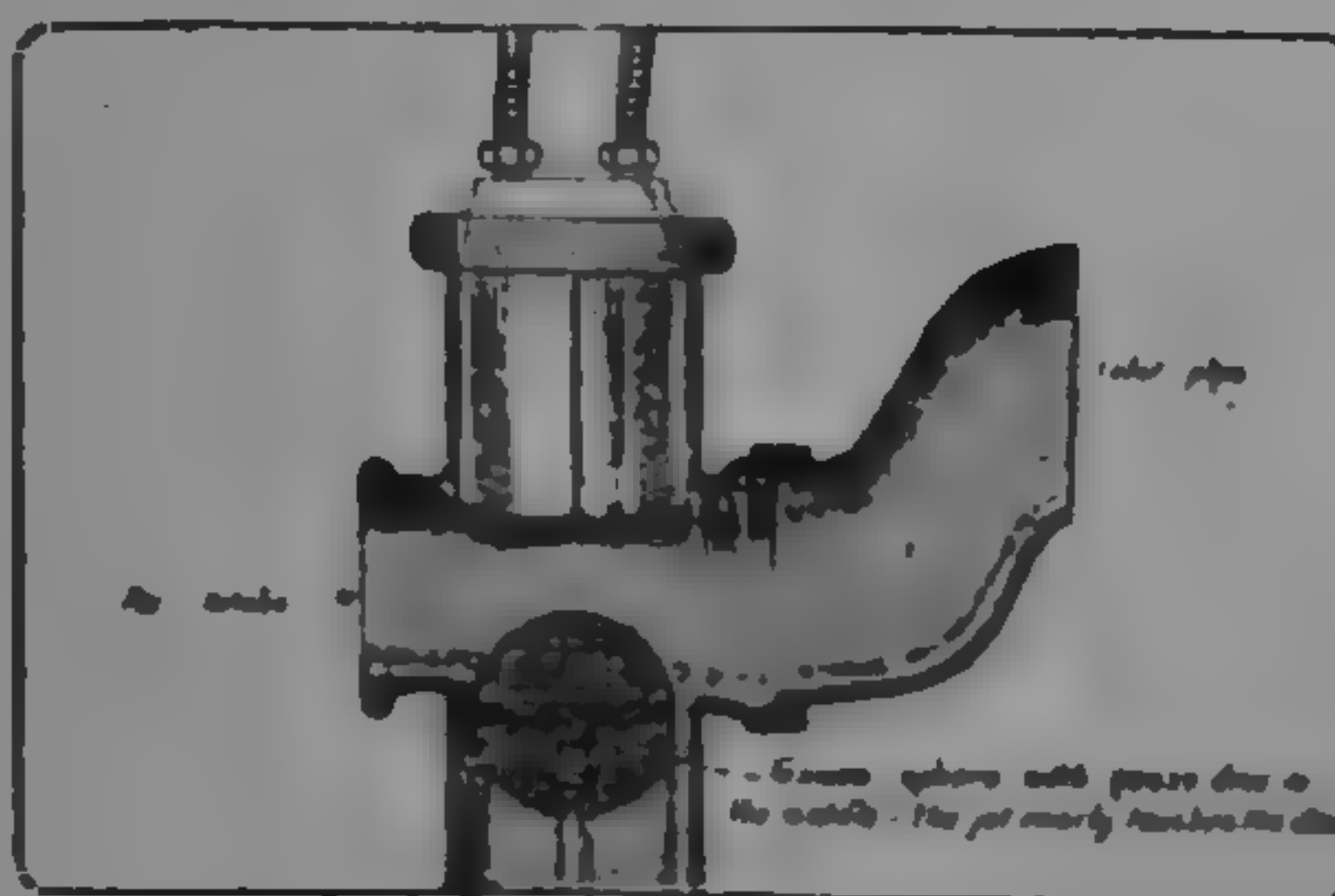
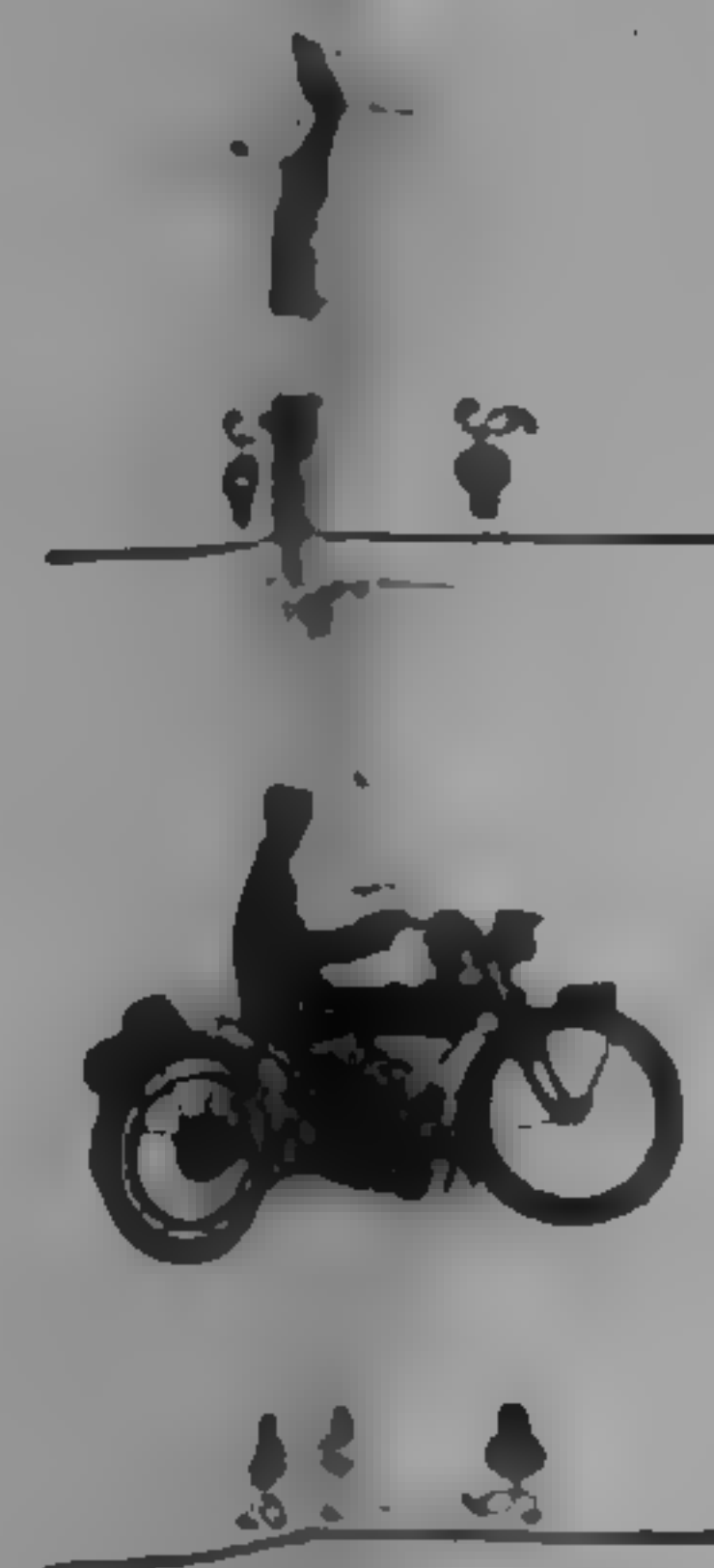


Illustration No. 3.—A vaporizing sphere round the jet.

takes the fuel to the exhaust pipe, where it is coiled round a number of times, it finally being led back to the carburettor at B. It will be seen that the fuel is at a very high temperature indeed when it reaches the jet, and thus the



Illustration No. 5.—Heating the fuel.





# USE PETROL?

## Substitutes and Conditions of Supply.

difficulties of vaporization are materially overcome. Utilizing the heated vapour from the crankcase in order to assist vaporization is shown in Illustration 6. The crankcase is drilled and a tap inserted. To this tap a copper tube is attached and coiled round the exhaust pipe, a copper pipe being taken to the carburettor and so arranged that the lubricating vapour of the crankcase discharges across the jet.

### Explosive Agents.

The use of acetylene gas has been advocated in some cases, but acetylene is undoubtedly a dangerous explosive to deal with and the greatest care should be taken when this is employed. In Illustration 7 the gas is merely employed to heat up the induction pipe. A tube from an ordinary generator leads the gas to a jet, which is bound to the induction pipe with insulating tape, a copper gauze cone being situated in the induction pipe. When it is desired to start up, the water is turned on and the gas ignited at the jet, which very soon brings the induction pipe to almost red heat. The heavy fuel in passing through the copper gauze cone is very readily vaporized, and, consequently, the engine should start up without difficulty. In other instances a minute jet is screwed into the induction pipe and the explosive force of the acetylene gas is employed to assist the ignition of the heavy fuel.

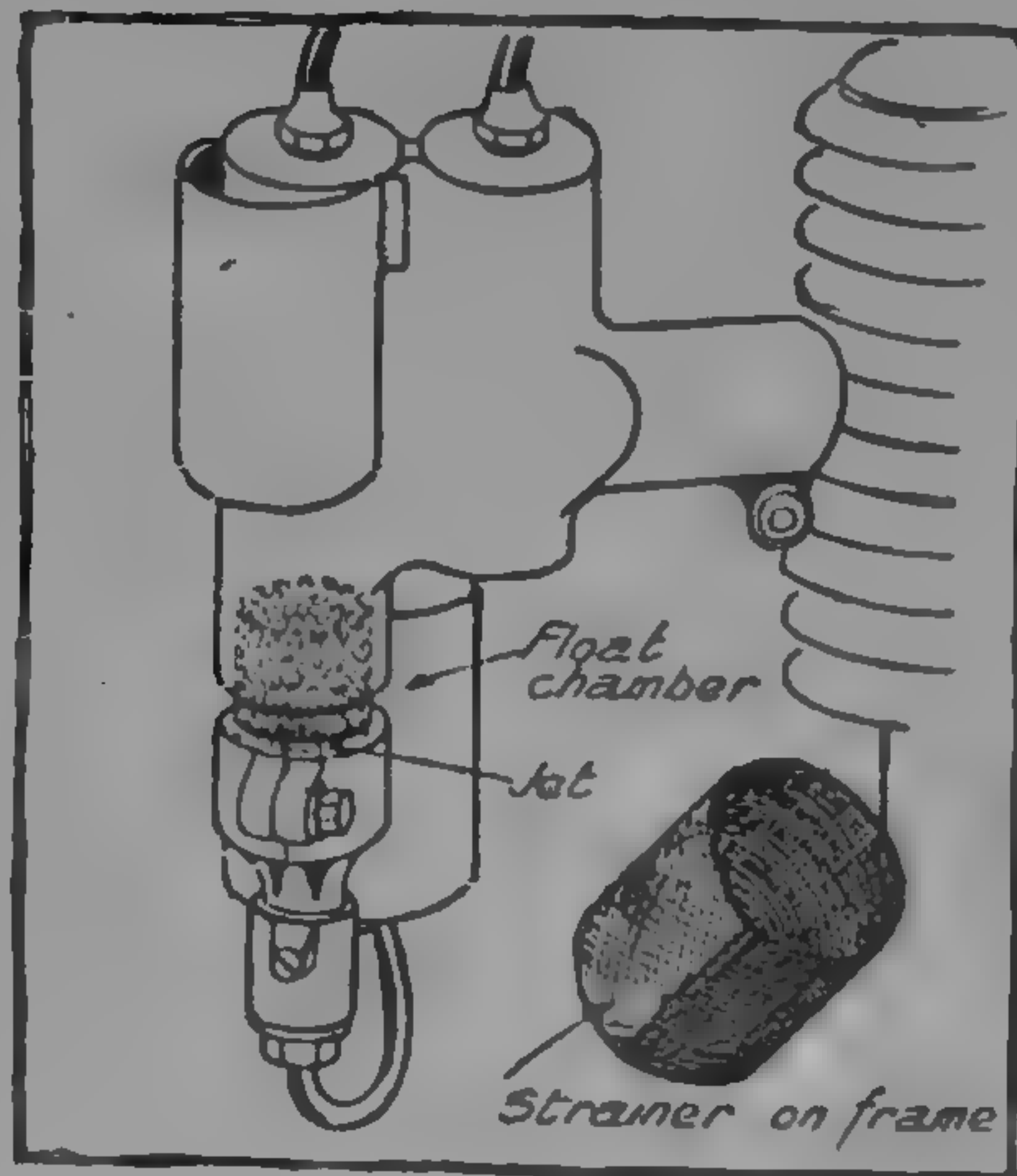


Illustration No. 4.—Another atomiser.

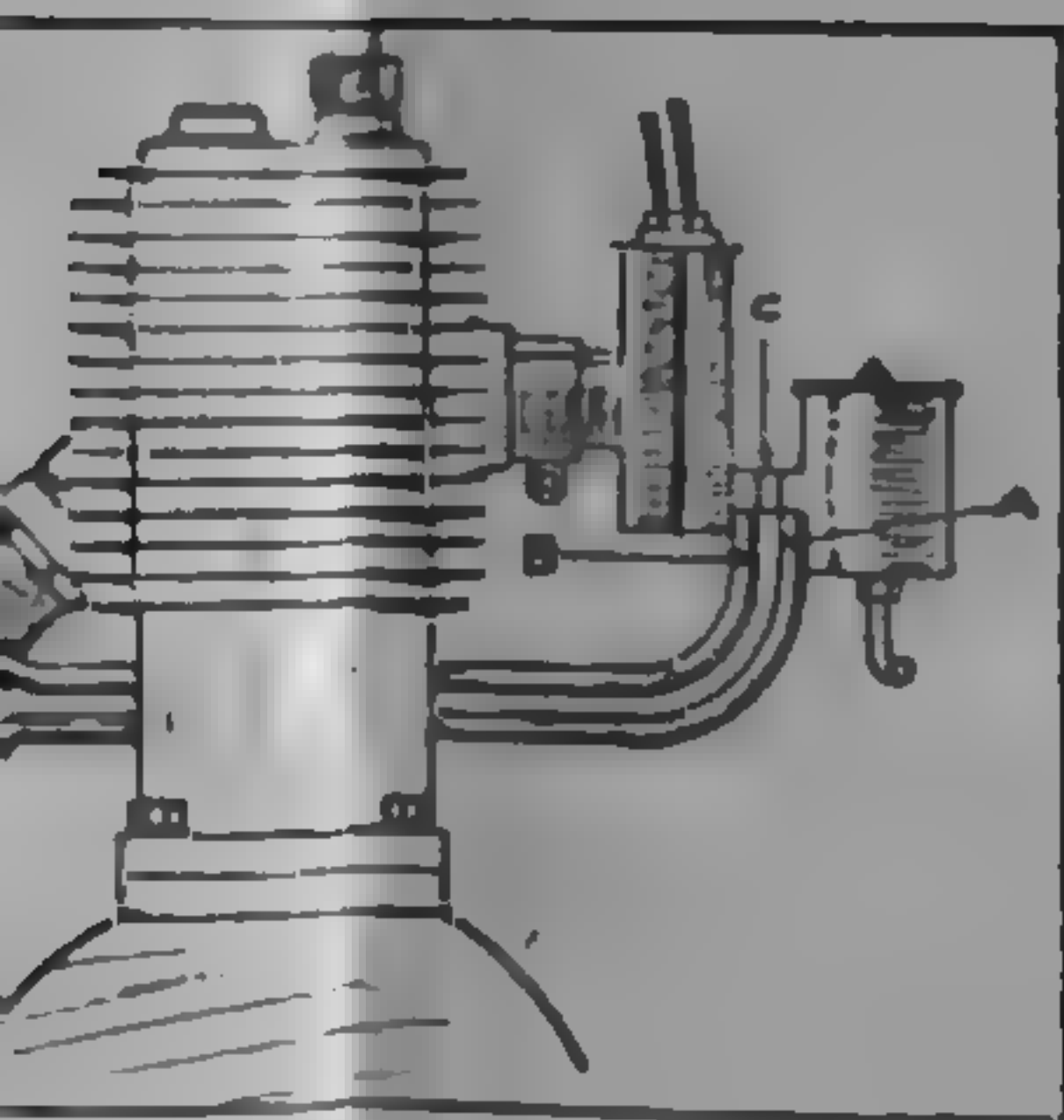


Illustration No. 5.—Heating the fuel.

### Using Petrol for Starting Purposes.

The 8th illustration shows the most usual method of carrying the supply of pure petrol when running normally upon petrol and paraffin or petrol substitutes. An auxiliary tank containing pure petrol is clipped to the saddle tube of the machine, and connects up with a three-way piece to the main paraffin-petrol or mixture pipe leading the fuel from the main tank to the carburettor. It is preferable to interpose a four-way tap beneath the carburettor so that, when the machine is stopped, the substitute can be drawn from the float chamber, and the latter filled up with pure petrol.

In addition to the devices we have described, mention should be made of the Grado, the Morgan and Silver vaporizers, which have proved extremely successful under searching tests. Another excellent device which uses the smallest quantity of petrol in starting up is the Euk easy starter, which is sold by Messrs. Alexander's Motor Exchange, 108-110, Lothian Road, Edinburgh. It will be remembered that we reviewed this in a recent issue after we had found it entirely successful in assisting to start up with the most refractory engine. Practically all of the large accessory houses can supply the materials

## AMPLE SUPPLY OF PETROL SUBSTITUTES WITH WHICH TO CARRY ON.

mentioned in the foregoing article. With all these aids at their disposal, and with a very fair quantity of petrol substitute available, our readers can face the summer season with equanimity.

## SUBSTITUTES.

### A Complete List of Alternative Fuels and Where and How Obtainable.

#### PLACE YOUR ORDER NOW.

**Petrolior.**—The Petrolior Co., 28, Kingly Street, London, W.

It will be remembered that we have tested this fuel extensively, and have found it remarkably satisfactory. It is obtained for immediate delivery at 2s. 9d. in 40-gallon barrels, 2s. 10d. in 10-gallon drums, and 2s. 11d. in 5-gallon drums. In an interesting conversation we had with Mr. Archibald Vickers, of this company, he pointed out that railway companies only took these substitute fuels on certain days, and consequently motorcyclists would be well advised to place their orders at once, and that purchasers should be prepared for a certain amount of delay. Petrolior is one of the best substitutes obtainable.

**Binks.**—C. Binks, Ltd., Eccles, Manchester.

Orders for this fuel are accepted subject to being able to deliver on account of the war. Supplied in 42-gallon casks at 1s. 10d. per gallon, or 1s. 8d. per gallon to users of Binks carburetters. Casks 12s. 6d. extra, of which 10s. is refunded when casks are returned, carriage paid, in good condition.

**Thewal.**—Thewal Motor Fuel Co., 158, London Road, Liverpool.

Deliveries from stock can be made at present at 1s. 10d. per gallon. The cost of casks will be remitted on their return.

**Beatsol.**—Alexander and Co., 113, Lothian Road, Edinburgh.

Deliveries of this fuel can be made from stock, immediately, in 42-gallon barrels, at 2s. 4d. per gallon. Local deliveries only can be made of loose fuel in single gallons at 2s. 6d. per gallon.

**Hercules.**—Hercules Motor Fuel Co., Blomfield House, London Wall, London, E.C.

This concern can chemically treat and mix any customer's own petrol and paraffin at a cost of 3d. per gallon, provided a licence for the petrol is held. Different proportions of petrol to paraffin can be mixed according to specific gravity of the petrol supplied. It is suggested that motorists should pool their supplies for treatment. Copies of appreciations from

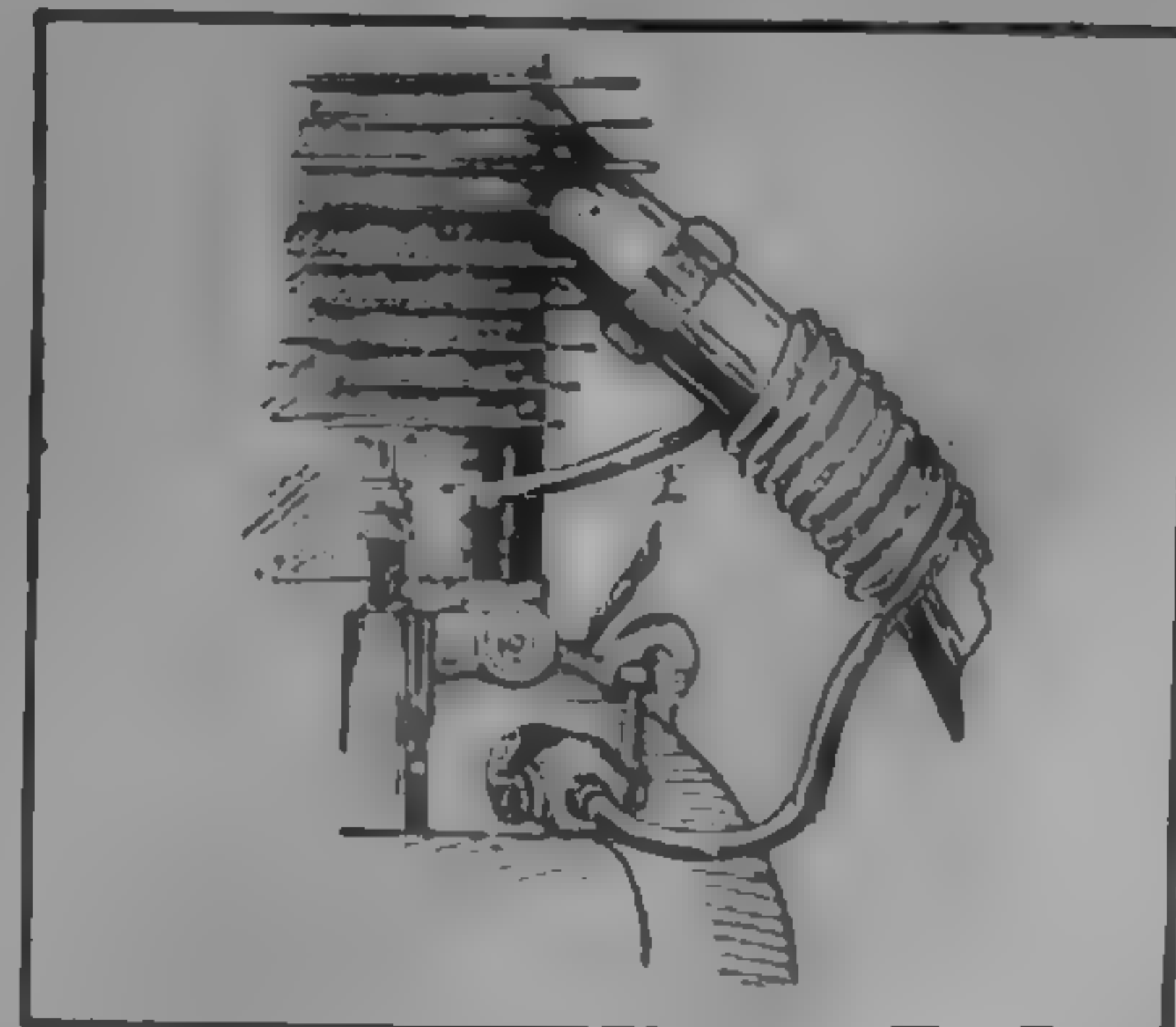


Illustration No. 6.—Utilizing crankcase vapour.

(Contd. overleaf.)



## Why Use Petrol? (contd.).

satisfied users of fuel thus treated can be obtained from the makers.

**Wital.**—Wital Motor Fuel Co., 37, Moorfields, Liverpool.

Prompt deliveries of this fuel are guaranteed. Supplied in 42-gallon casks at 2s. 6d. per gallon.

**Teprol.**—J. Blake and Co., 22, Rodney Street, Liverpool, and Blackfriars Street, Manchester.

42-gallon barrels of this spirit can be supplied, free on rail at Liverpool, at £5 5s. each, including 8s. 6d. for the barrel, which will be refunded on its return in good condition. Small quantities can also be supplied to local clients in their own tins, at the depots, at 2s. 6d. per gallon. Orders should be placed promptly.

**Relico.**—The Reliance Lubricating Oil Co., Ltd., 19 and 20, Water Lane, Great Tower Street, London, E.C.

Trade inquiries only entertained. Fuel can be supplied in 42-gallon barrels. The stocks are limited and orders will be executed in rotation as they are received.

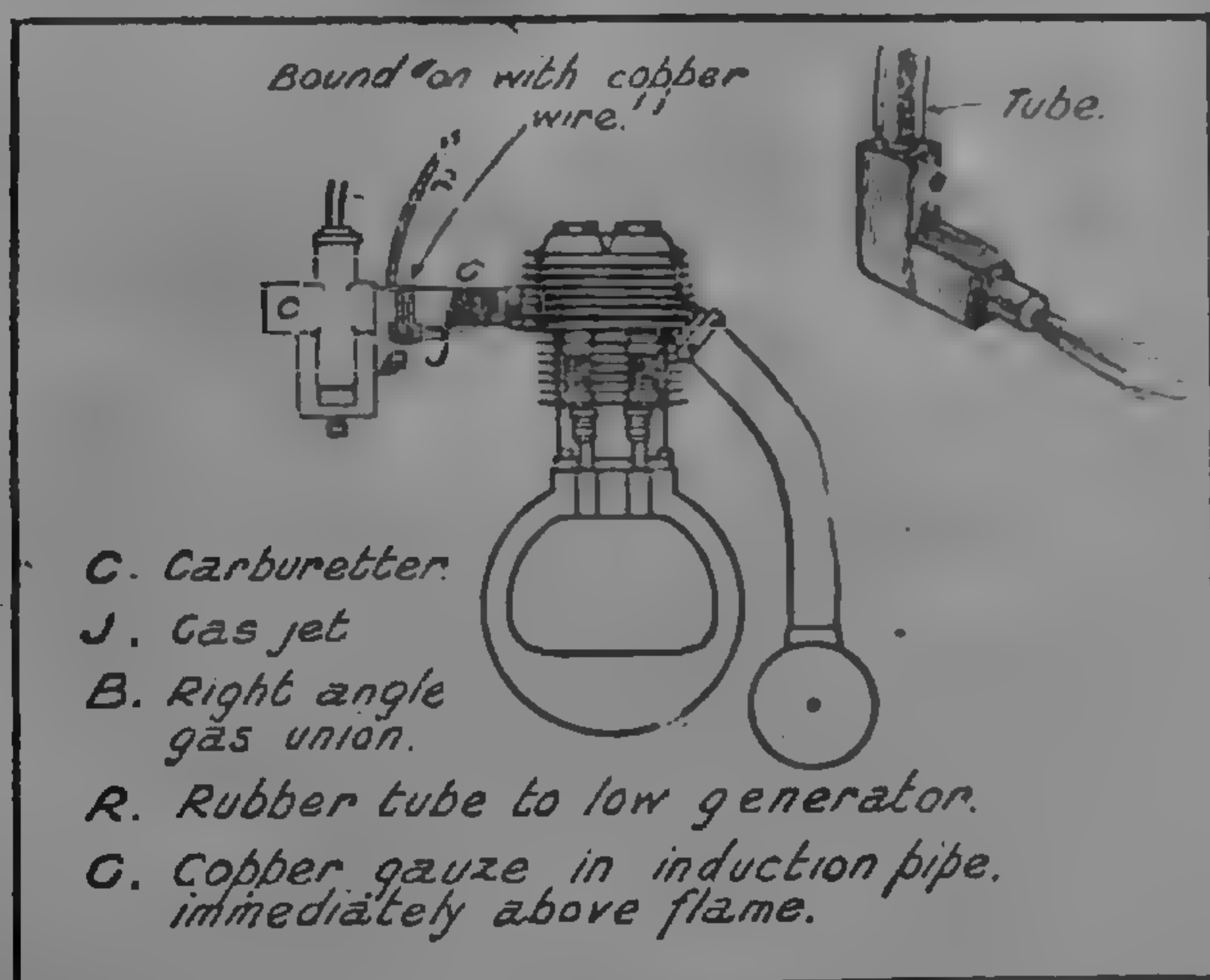


Illustration No. 7.—Acetylene gas used for heating purposes.

**Hall's.**—J. Hall and Sons, Broadmead, Bristol.

A certain limited quantity of fuel is available at 2s. 7d. per gallon in customers' own packages, for the Bristol district. A certain quantity is also available at the concern's London house.

**Harwood's.**—E. B. Harwood, City Garage, Far Gosford Street, Coventry.

A large stock of this fuel is available, supplied in (approximately) 50-gallon steel drums, and also in 2-gallon cans, at 2s. 6d. per gallon.

**Rannard.**—Longworth, Rannard and Co., Ltd., 162, Union Street, Old Lambeth.

Can supply any quantity from stock.

At the time of going to press we had received no communications from the following concerns, who are doubtless, however, in a position to supply the substitutes mentioned:—

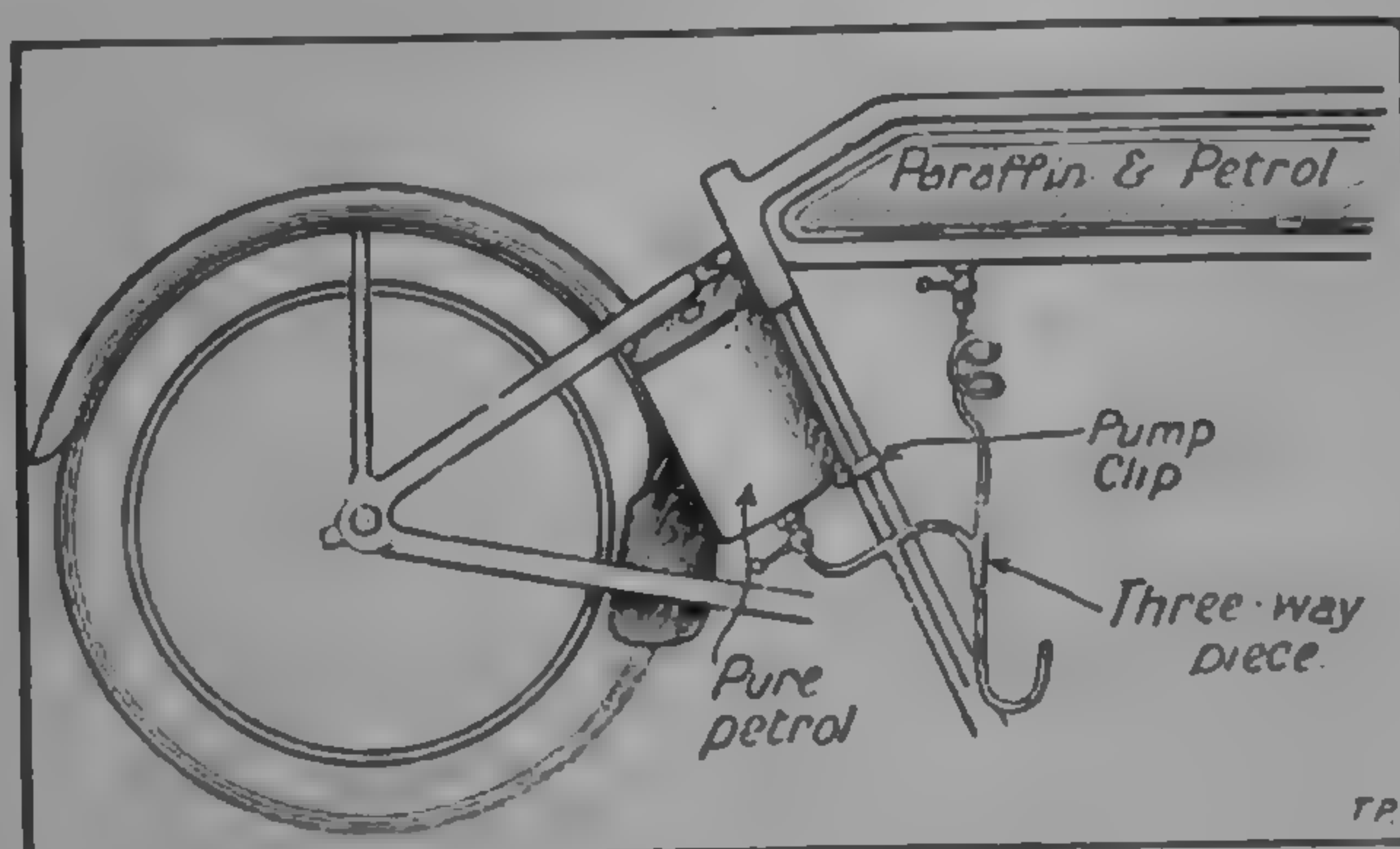


Illustration No. 8.—The standard method of auxiliary petrol supply.

Triple	...	British American Oil Syndicate, 1, Albemarle Street, London, W.
B.M.G.	...	Barnes Motor Garage, Barnes, London, S.W.
Wertol	...	Werties Motors, Ltd., 7, Queensferry Street, Edinburgh.
Kempol	...	Kemp's Vulcanizing Co., 48, Hardman Street, Manchester.
Little's	...	Little's British Motor Spirit Co., Standard Buildings, City Square, Leeds.
Petrofin	...	Anglo-American Oil Co., 36, Queen Anne's Gate, London.
Petroline	...	Petroline Co., High Street, Cheltenham.
Petron	...	Max Emanuel and Co., 41, Shoe Lane, London, E.C.
Russelline	...	Russell Oil and Chemical Co., 33, Adams Street, Birmingham.
Substitute	...	Messrs. Green Taxis, Villiers Street Garage, London, W.C.
Beuzolite	...	F. G. Scott and Co., Milburn House, Newcastle-on-Tyne.
Force	...	G. T. Harrap, 15, Budge Row, E.C.

## THE VICTORY LOAN.

IN addition to the subscriptions to the above loan to which we have previously drawn attention, the following amounts have to be added. It is estimated that the motor-cycling and allied industries will subscribe over £5,000,000, and we shall be very pleased to

hear of any further subscriptions with a view to publication—not as an advertisement for the subscribers, but so that we may be able to place on permanent record the response of the industry to the most important monetary appeal that has ever been made.

		£
Dunlop Rubber Co., a further	£100,000, making	350,000
Calthorpe Motor Co.		50,000
Directors of Calthorpe		25,000
J. B. Brooks and Co.		25,000
Rudge-Whitworth, Ltd.		10,000
H. Miller and Co.		10,000
Directors of above		12,000
Middlemore and Lamplugh		15,000
C. H. Pugh, Ltd.		15,000
Bradbury and Co., Ltd.		10,000

		£
Raleigh Cycle Co., Ltd.		50,000
Hans Renold, Ltd.		75,000
Car Chain Co.		25,000
Perry and Co.		25,000
Alldays and Onions		21,000
Lodge Sparking Plug Co.		25,000
Brown Bros., Ltd.		20,000
Joseph Lucas, Ltd.		15,000
C. A. Hyde (B.S.A.)		12,500
Triumph Cycle Co., Ltd.		53,000



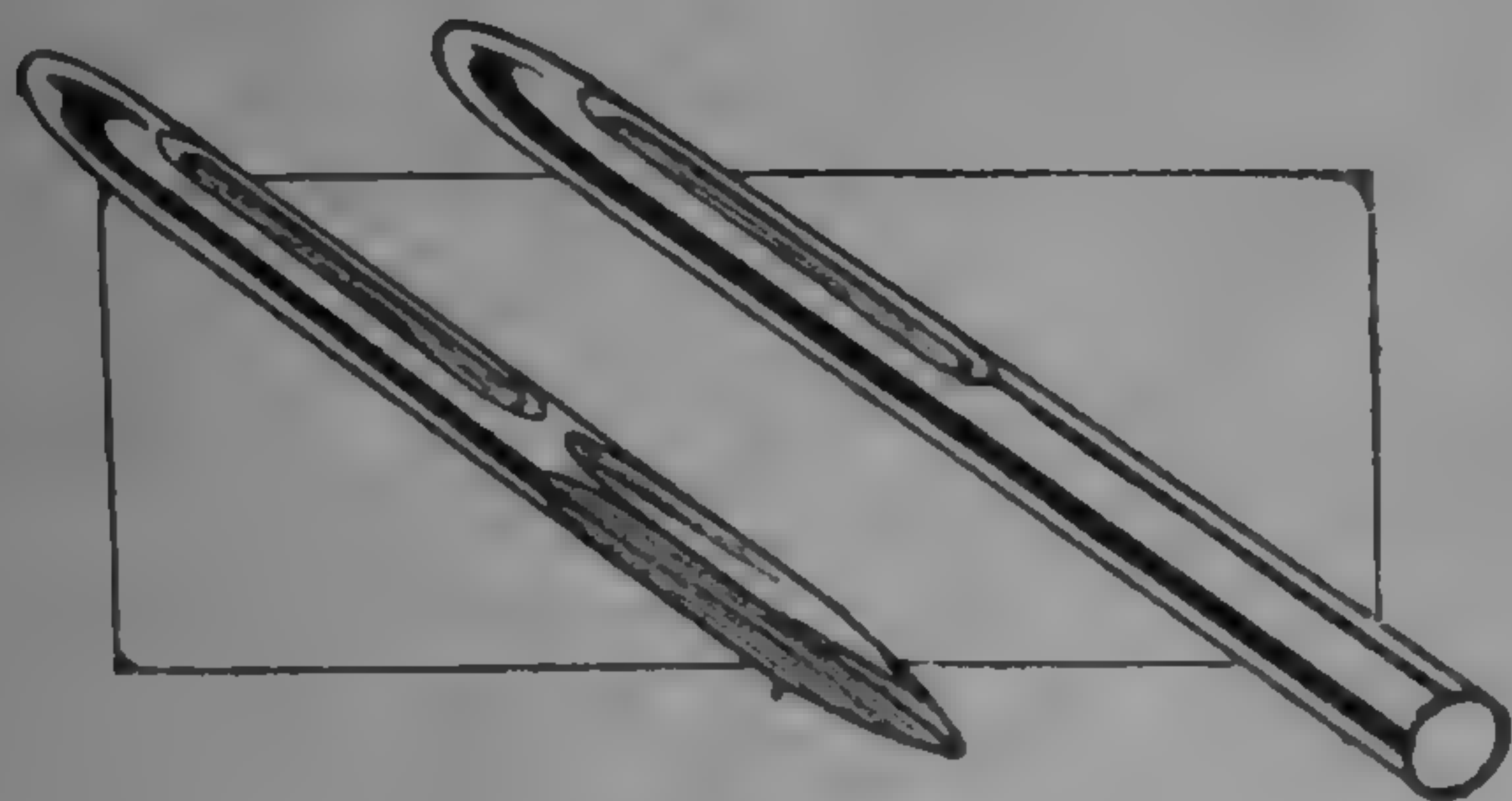
# Hints From a Sapper's Notebook.

[SECOND SERIES.]

## Various Tips that will Assist the Novice and the Expert.

### Compression Tests.

A good way in which to find whether the valves or piston rings are leaking without taking down the whole engine is to warm up the engine, take off exhaust pipe and carburetter, give a paraffin injection, or fill the cylinder with tobacco smoke, and turn the engine over compression, watching for any smoke to come through via the valves. If there is no escape and compression is weak, it is obvious that the rings are worn and are leaking. Paraffin injected into a warm cylinder will

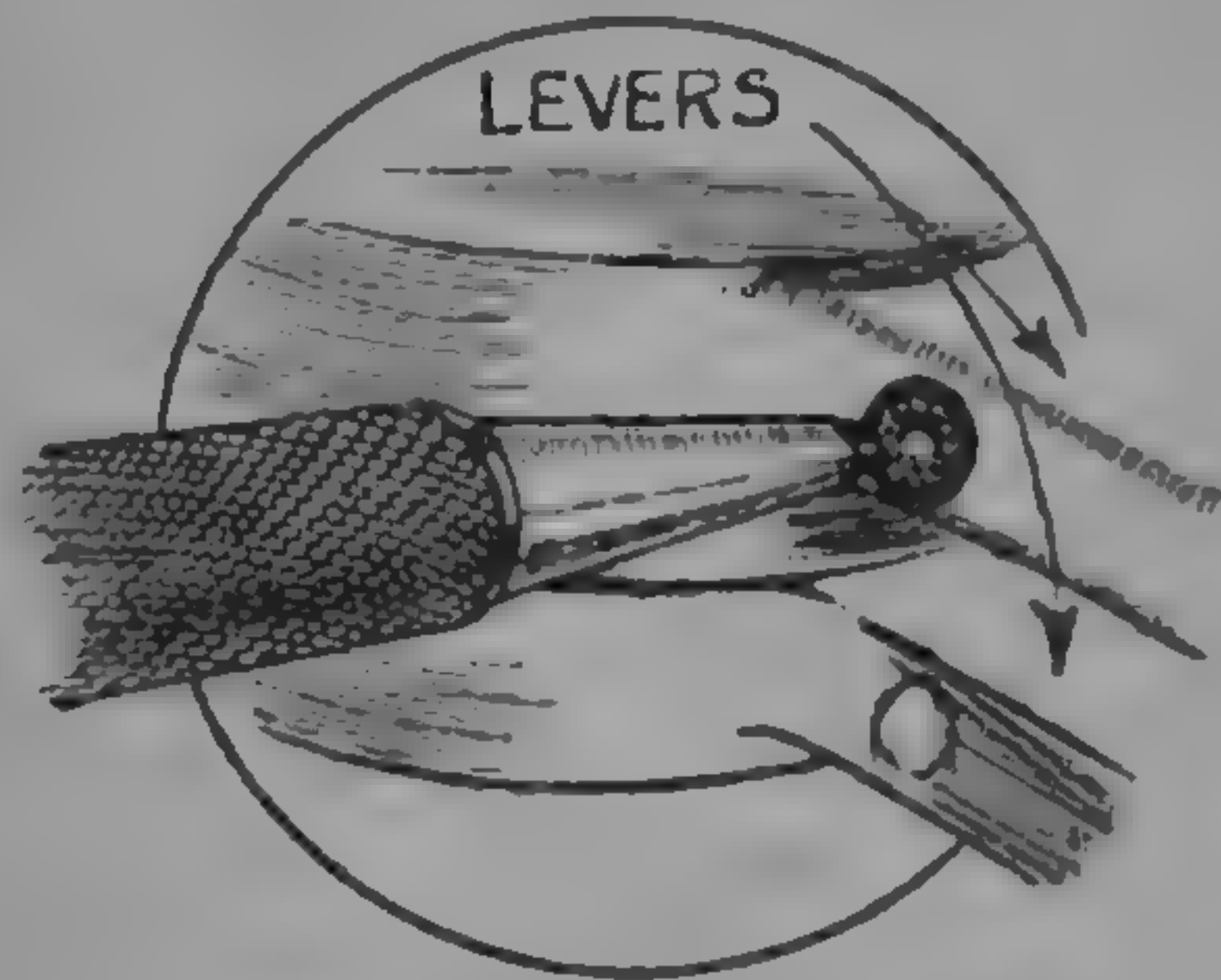


An effective jet reamer can be made by grinding four faces on a thin darning needle.

give off dense white fumes which can be seen easily. To get tobacco smoke into the cylinder, all one has to do is to wrap the stem of a lighted pipe or cigarette in a rag, stuff it into the induction pipe, and then turn the engine round. Similarly, it is possible to test for air leaks in the carburetter and induction pipe—the cause of nine out of ten bad starters.

### Reaming Out a Jet.

Should one want to experiment with a larger jet without going to the expense of buying a set of jets, the best way to do it is to procure a small one and ream it out with a darning needle. To make the darning needle of any use you must first grind four flat sides on it on a small oil stone: this makes a very satisfactory tool. When you have got the best results, you can keep the reamed jet in your carburetter, or get an equivalent from the makers. You can easily compare the sizes of your jets by measuring how far in you can put an ordinary needle.



Sticking Bowden control wire can be cured by a smart tap with a centre punch on the nipple.

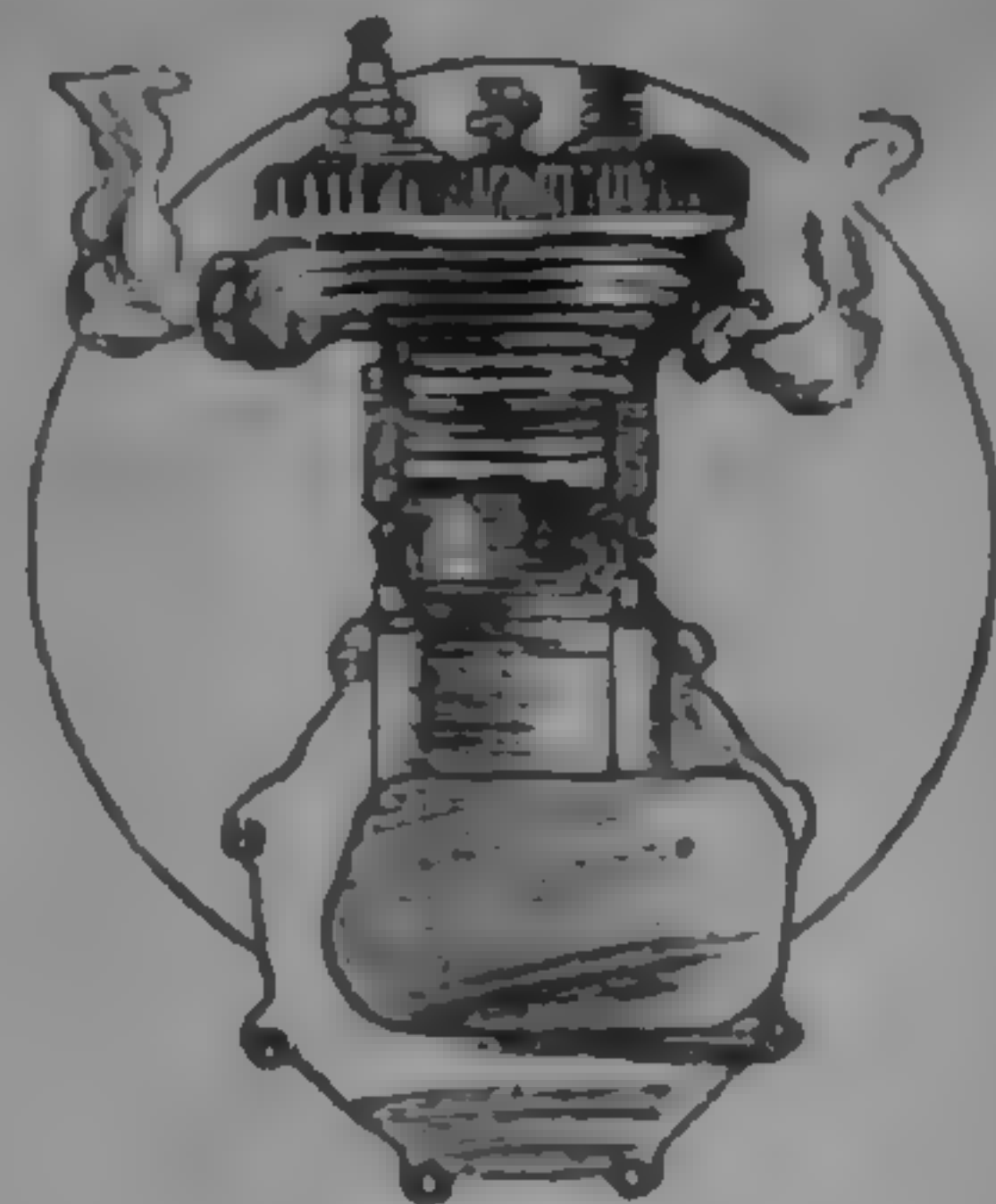
### A Primus Swedish Blowlamp.

Though not part of a motorcycle, this excellent lamp should be part of a motorcyclist's workshop, and those of you who are lucky enough to possess one will, I feel sure, be glad for a hint or two concerning it. The lamp is a first-class article, and quite respectable brazing jobs can be done with it. But I have noticed that many of these lamps I have seen working only give half the heat they are capable of, and this all because

their owners will not keep the jet clean. This is the whole secret of these lamps. In my own I frequently remove the jet to clean. To do this I converted a magneto spanner to fit the jet, as it is very awkward to remove without a special tool. If the open end of a magneto spanner (such as is provided for magnetos with the smaller type nut to their platinum points) is filed a bit, such a conversion is easily made.

### Squeak on Old Triumphs.

I have come across several riders of old Triumphs who complained of a squeak they could not locate, saying they suspected the spring forks, as the noise was of an oscillating nature. As a matter of fact, the noise is caused by the inlet cam wheel in its bush in the timing gearcase cover. For some reason or other it has run short of oil and is trying to seize. To cure, lean the machine over on the pulley side and squirt plenty of thin oil over the bush; allow it time to ooze in and the noise will cease. I was riding an old Triumph once and the noise started quite suddenly, and soon increased to really blood-curdling wails. I could not locate the noise, and attempted to start, but the machine would not pull at all. I just mention this to show that it is just as well to attend to the squeak as soon as possible.



In order to detect compression leaks the cylinder can be filled with tobacco smoke and turned over compression.

### To Clean Lodge Plugs.

The following is an excellent way to clean a Lodge plug and a great improvement on the old way of scraping with a knife. Clean the plug in the ordinary way with a toothbrush and petrol, then dip the electrodes in paraffin. Sprinkle on a pinch of knife powder, push on the gauge supplied with the plug, revolve this between finger and thumb, and the points should be nicely polished; if not, repeat the operation. Before replacing plug, be very careful to wash off all traces of knife powder.

### Sticking Bowden Wires.

I expect many riders are troubled with carburetter controls sticking. When they shut the throttle or air levers the engine continues to fire and the ends of the control wires protrude from the levers. By pushing these in with the hand the engine stops all right, so that the trouble would cease if these ends could be persuaded to stay in their holes. This is easily done simply by placing a centre punch on the ends of each and giving them a smart tap with a hammer. This expands the nipples in their holes, from which they now will not emerge, and so the trouble is cured.

*In view of the necessity of economizing paper, imposed upon us by the Government, readers are asked not to buy "Motor Cycling" casually here and there, but to place an order for it to be delivered or reserved regularly by some selected newsagent.*



## THE EDITOR'S CORRESPONDENCE.

The Editor is not responsible for, neither does he necessarily agree with, the views taken by correspondents. Both sides of any topic are given equal publicity. A pen-name or initials can be given for publication, but the writer's full name and address must always be sent. All communications should be written on one side of the paper only.

## "Foreign Trade Seducers."

Douglas Bros., apparently smarting at the indiscretions contained in their first letter, now affect not to have understood it. How on earth can they hope to understand mine? I regret being compelled to reply to their last letter somewhat plainly; it is merely a cavil. Whether "Disreputable Foreign Adversary" or "Foreign Trade Seducers" is the more calumnious expression I leave to your readers. In Douglas Bros.' opinion I am unpatriotic. Why? Surely they make no claim of patriotism? No patriot sells his services to his country for increased profit, neither does he complain at having to do so compulsorily. See Douglas Bros.' letter, 2nd January: "Unfortunately, our output for some considerable time past, and we anticipate for some considerable time in the future, has been, and will be, entirely at the command of the War Office." Further on: "... but fettered as we are, we must accept the inevitable." If this is patriotism, it must be defined in Douglas's dictionary as "Hobson's choice." By comparison, the conscript who sacrifices savings, earnings, home, and risks his life must be a martyr. Their astonishment at my hasty indignation (not, as a rule, a failing of my countrymen) is only exceeded by their amazing claim to politeness. What their expressions would resemble when impolite, heaven only knows! The title alone savoured of Billingsgate. My interpretation of their title and context was that it was both vicious and offensive. A Sheffield firm has secured an order for £600,000 from America for shells. America is still, "fortunately," our best market, it should be remembered. An American statesman in a public speech openly congratulated the British manufacturer and severely criticised his American contemporaries, suggesting that some trust or association was responsible for their failure. This American, pluckily ignoring unpopularity, fearlessly appealed to his countrymen's sense of honour. He was regarded by the British Press as both sportsman and patriot. Had he been neither, he might have stirred up the prejudices of American manufacturers and their sympathizers, and cursed the legislation which allowed the "foreigner" to capture their trade. I would remind Douglas Bros. that all the British companies in which I am interested (either wholly or in part) are engaged on munitions, yet I claim no patriotism for this. To do so would grievously insult the gallant fellows and their memories who voluntarily sacrificed all for king and country. To render public service without fee or reward comes under a different category.

I lack British sentiment. Is Douglas Bros.' interpretation of this expression to be found in their future policy outlined in their letter of 2nd January? I suggest a better definition would be "The Dog and His Shadow."

1917 models. I hardly expected a gratuitous advertisement from Douglas Bros.; nevertheless, I thank them for it. If I (or anyone else like situated), with the loyal consent of agents, surrender stock, imported for the British market, to meet the urgent requirements of an Allied Army, and elect to wait five months to have it replaced, and incidentally pay the higher cost, can any sane or sober individual complain or suggest (having already had the position fully explained in the Press) that such an incident constitutes a breach of our Government's enactments? Or is it a suggestion that the British Government, without justification, should break the solemn compact into which they entered? Two questions arise, however. The first is: If these machines are inferior to our previous models, why need British manufacturers grumble? If superior, why should not British riders get the advantage? The date my company opened up in England has no significance. It was necessitated by increasing favour and demand for the Harley-Davidson product in the English market. Have Douglas Bros. shown sufficient enterprise to open a branch in America, or have they so easily disposed of their product that they need not trouble? Dealing with the retort that I am anxious for business reasons to protect the foreign manufacturer, I would state that I have always heard Americans spoken of as our cousins, never as "foreigners"—a term intended to prove offensive—yet we must not forget that America was once part of our Empire, and possibly ere this letter appears will be our Ally. At any rate, their attitude is a salutary lesson to those who believed that they were indifferent to the claims of humanity or lacking in chivalry. Be that as it may, as my firm was mentioned, I make no apology for stating that of my four colleagues, the three Davidson brothers are Scotch, Mr. Harley is an Englishman, and I, too, in the eyes of Douglas Bros., am a "foreigner," being a Scotsman. Moreover, I have excellent reason to feel proud of my company. In conclusion, may I say that I yield to no man in my admiration for British manufacturers in respect of both their product and capacity. What I have done is fearlessly to criticise the policy and prejudice expressed in Messrs. Douglas Bros.' communication.

DUNCAN WATSON.

Managing Director, Harley-Davidson Motor Co., Ltd.

## The Second-hand Market.

Your footnote to "Novice's" letter is certainly timely, to put an end to some of these really foolish remarks about dealers. If purchasers of motorcycles cannot take enough interest in them to educate themselves in the common rudiments of the recreation sufficiently to know when a tyre has come to its last run of life, it would be much better to stick to a donkey cart. The "front brake was missing." Surely "Novice" was "pulling our legs," or had he just come from the wilds, and never seen even an ordinary cycle, let alone a motorcycle? I, personally, should not like to sell such a buyer a machine of mine, for, however good to begin with, it would be a sorry wreck after the first 50 miles, certainly either seized-up or else oiled up, probably the former. Moreover, £9 for roadside repairs in the first 1000 miles covered on the oldest bus would convince me that I was not handling it as a motorcycle, but my requirement was a traction engine.

I started motor cycling two years ago with a 4 h.p. 1913 second-hand New Hudson single. I attached a heavy sidecar to it, and rode 30,000 miles at a total cost, all in, of 13d. per mile. This includes the amount I dropped in finally selling the machine. I gave £37, and got £22 from a friend, although I wrote to Messrs. Wauchope's, as I thought of buying a new machine from them, and they offered to allow me £34 in an exchange off any machine advertised by them in your journal.

A28

I always carried 3 to 4 cwt. in that sidecar, and I finally decided that I ought to have a stronger powered machine, as it was unfair to my trusty old 4 h.p., which had been a marvel, and never let me down once. Having a good offer of an 8-10 h.p. twin o.h.v. Bat-J.A.P. and sidecar, I decided to sell cheap to my friend, telling him candidly what I had done on it, and he rode it some few weeks, and then on my advice had the big-end rebushed. On inquiry at the garage, I found this was gone, but not really shockingly bad. It was a J.A.P., and really marvellous for the miles and loads it had taken.

I had no knowledge of motorcycles whatsoever before I started, but every spare minute for the first six months I used to clean that machine, go round the nuts, and generally endeavour to educate myself in the rudiments of its working.

Finally, any man who buys from a dealer does so of his own free will, and any dealer of decent repute would, I am certain, not patch up things to last the buyer until he was only just out of sight. Although I have never been to a dealer, I should, if it so suited me, go to one to-morrow, but I should use what little sense Nature had endowed me with, and certainly would not, every time I had a puncture, misfire, loose cone or nut loose, run to the nearest garage, but set my teeth and do the job myself, for I am not a millionaire by any means.

Now ENTHUSIASTIC BAT-J.A.P.

Farnham.



## THE STEAM CYCLE.

### A Criticism and Suggested Designs.

I am pleased to find that there are those keen on an attempt to improve the steam motor. Such enthusiasm helps the true interests of engineering; but, as is usual in such cases, your correspondents are impatient of criticism and resort to the childish attempt to gain a point by thinking to ridicule an opponent or critic, not having been able to sit quietly and grasp the statements made first. I forgive this, as I have found most of those who shout "Eureka" suffer thus.

You cannot have it both ways; if you wish to cite steam wagons as an argument, you cannot say it has little relation to the subject. "Fair Play" takes one position, Mr. Field the other. So far as my knowledge goes, the heavier vehicle presents by far the more favourable conditions for steam, as one can use whatever type of boiler one thinks best and have a semi-skilled attendant for it. On a cycle the boiler is a very difficult problem. The simplest method is, of course, to adopt the "flash" system so as to meet running conditions, and let economy look after itself—economy, that is, as regards evaporation, and even more so as regards the use of steam in the cylinders. Do your correspondents realize the pressure and temperature of their exhaust steam? Even compounding the engine will not make possible the economical use of steam having such high pressure and temperature. In spite of being able to avoid these disadvantages to a large extent, what is the present position of the steam wagon, both at home and at the Front? Are your correspondents aware? Of course the steam wagons run well, and are very nice little sets. Mr. Field's cycle may run very nicely—it is a question of utility, a question of which type of engine meets the requirements of the purchaser. If a steam lorry, with its comparatively economical use of steam and fuel and the added attraction of the cheapness of solid fuels, cannot win an unassailable position, how can steam win a corner in less favourable circumstances?

The figures I quoted were those given me by agents for the White and Stanley firms a few years back. No doubt, they can be improved, but they show from where one has to start. Are your correspondents in touch with condensing engine practice? If so, even given the far more favourable conditions obtaining in these big plants, quite a considerable "make-up feed" is necessary.

It is all very well to deride public opinion, but do the public continue to purchase a make that does not possess the best and most advantages? The public may let trivial details decide between two otherwise equal makes, but it does not stick to the less handy type.

One considerable trouble with steam plants in the hands of the ordinary user is the presence of so much water. How many motorcyclists like to be bothered even with water cooling? Radiators are easily damaged, small leaks soon cause a large loss of water. Who wants to be lumbered with an extra tank? Then there is the need to drain tank, boiler, and steam pipes thoroughly in frosty weather, as most places where motorcycles are stored are not safe from frost: even domestic water services freeze up.

Of course, a 100 degrees vertical twin cannot be perfectly balanced, though the balance is good, and vibration must result by the laws of nature. If one uses poppet valves (flat or mitre) a certain amount of noise, shock, and wear is unavoidable. Then, again, a steam leak is always an annoying leak; it is noisy, it is very noticeable (this is good when wishing to remedy, but how about while needing to run before repairs can be effected?), and it soaks everything. Leaky induction pipes (petrol) may cause less perfect running, but they are not an annoyance otherwise. If anything happens to a steam motor on the road it is likely to mean a nasty job—dirty burners, scalding pipes, or the like; on a petrol motor one is only likely to be troubled with a clean and accessible sparking plug, a clean contact-breaker, or the carburetter, which cannot be called a beastly job. What can possibly be more simple or satisfactory than the air-cooled two-stroke, especially as represented by the best examples? No steam engine can attain the simplicity of this type.

Again, I repeat, what is the defect in the motorcycle that steam can remedy? As regards first cost, I do not think steam plants can be built any more cheaply than two-stroke ones complete with gearbox (especially if friction drive, as proved practicable by the G.W.K., comes into use). Though,

no doubt, steam plants might be slightly cheaper than elaborate petrol sets, there would be no noticeable difference in the selling cost, owing to the necessity for water tank and radiator. Once on the road, the petrol motor shows no cause or call for a different power plant. With the opposed twin we get absence of vibration, with the two-stroke silence, if one prefers totally to silence the exhaust (the engine is silent). Rattle only occurs in the less perfected engines. Just a dig and the engine starts; just a movement of the lever, and the gear is changed.

However, I think a revival of steam lorries possible before steam dies out altogether, but, as I have said, the larger steam plant has a chance, the smaller one has not. For myself, I believe a vertical twin compound with one central piston valve and double-acting enclosed engine is likely to prove most satisfactory, as it has done in generating sets.

Will the Editor ask Mr. Clarkson to contribute? The plain motor-cycling public does not seem interested, as I expected.

IVOR E. MERCER.

Much has been written about steam cycles; their advantages and disadvantages have been put forward by various writers, and photographs of privately constructed machines have been published. An improvement that occurs to me would be to provide an engine using petrol and steam. A twin-cylinder engine could be used, one cylinder using petrol the other steam. As an alternative, a steam turbine could be used with the petrol engine. The generator could be placed inside the water tank supply, as in "Fair Play's" design. This would utilize the heat dissipated from the generator. The ordinary tank would contain the petrol and oil, and a small tank could be provided for the paraffin.

By combining the internal-combustion engine and the steam engine we should have the advantages of both: we should also have their disadvantages, but the former should outweigh the latter. The machine would start as quickly as the ordinary motorcycle, for the rider would not have to wait until the generator became heated, but could start with the petrol engine and use the steam power when sufficient heat had been obtained. The petrol engine could be water-cooled if desired by using the water in the water tank. The machine would be cheaper to run than the ordinary motorcycle, and would be just as fast and reliable. A plain tube condenser could be fitted. If the internal-combustion engine were run on paraffin the fuel for the engine and burner could be carried in the same tank. An exhaust feed water heater could be provided to help the burner. An ideal sidecar machine would be one fitted with four cylinders: two for petrol, two for steam. Interest has been roused in the steam motorcycle, and I hope it will not fail through lack of support.

H.T.C.  
Bedford.

I note that in the correspondence relating to steam cycles several writers are inquiring whether it would not be possible to substitute a steam turbine for the reciprocating engine as the power unit.

As a motorcyclist who has spent 15 years in the design and construction of steam turbines, I beg to point out that this is at present entirely unfeasible. The steam turbine derives its power from the velocity of the steam expanded through nozzles, and to be efficient requires to run at a peripheral speed with a single wheel turbine of half the velocity of the steam when issuing from the nozzles.

Practically, the only steam turbine at present made small enough for motorcycle powers is the De Laval, which in the 5 h.p. size has a wheel of 4 ins. diameter running at 30,000 r.p.m. This is geared down 10 to 1 to the generator, which runs at a speed of 3000 r.p.m., and will not give anything approaching full power except at this speed. I think that these facts will at once prove that for motorcycle use a steam turbine is out of the question, as no one wants gearing down from 30,000 r.p.m. to a road wheel speed of, say, 300 r.p.m., which corresponds approximately to 25 m.p.h.

The steam consumption, too, of these small sizes, especially when run without a condenser, is very much higher than with a well-designed reciprocating engine.

As a further proof I may point out that on modern torpedo boats the reciprocating engine still holds sway, with the exception, I believe, of American types, where a multi-wheel turbine is now used, and this is with a power of 50 to 100 h.p.

62, Ashbourne Road, Derby.

A. WILKINSON.



Correspondence (contd.).

The First Territorial V.C.

As a constant reader of your very excellent paper, will you allow me to correct an error which crept into last week's issue.

You publish a photograph of Lieut. Belcher, and state that he was the first Territorial to win the V.C. This is incorrect, as the first Territorial to win the V.C. was Lieut. Woolley, of the Queen Victoria Rifles, who gained the honour for conspicuous bravery at Hill 60 on the night of 20th April, 1915. Lieut. Belcher won his V.C. shortly afterwards when he was a sergeant in the London Rifle Brigade.

Augustus G. Turner  
(Late Queen Victoria Rifles).

Twickenham.

Successful Sidevans.

I beg to point out one or two inaccuracies in your article entitled "Successful Sidevans" in MOTOR CYCLING of 6th February.

(1) I first purchased an Enfield combination in February, 1915, at Mr. Lamb's. Mr. King followed suit in June, 1915.

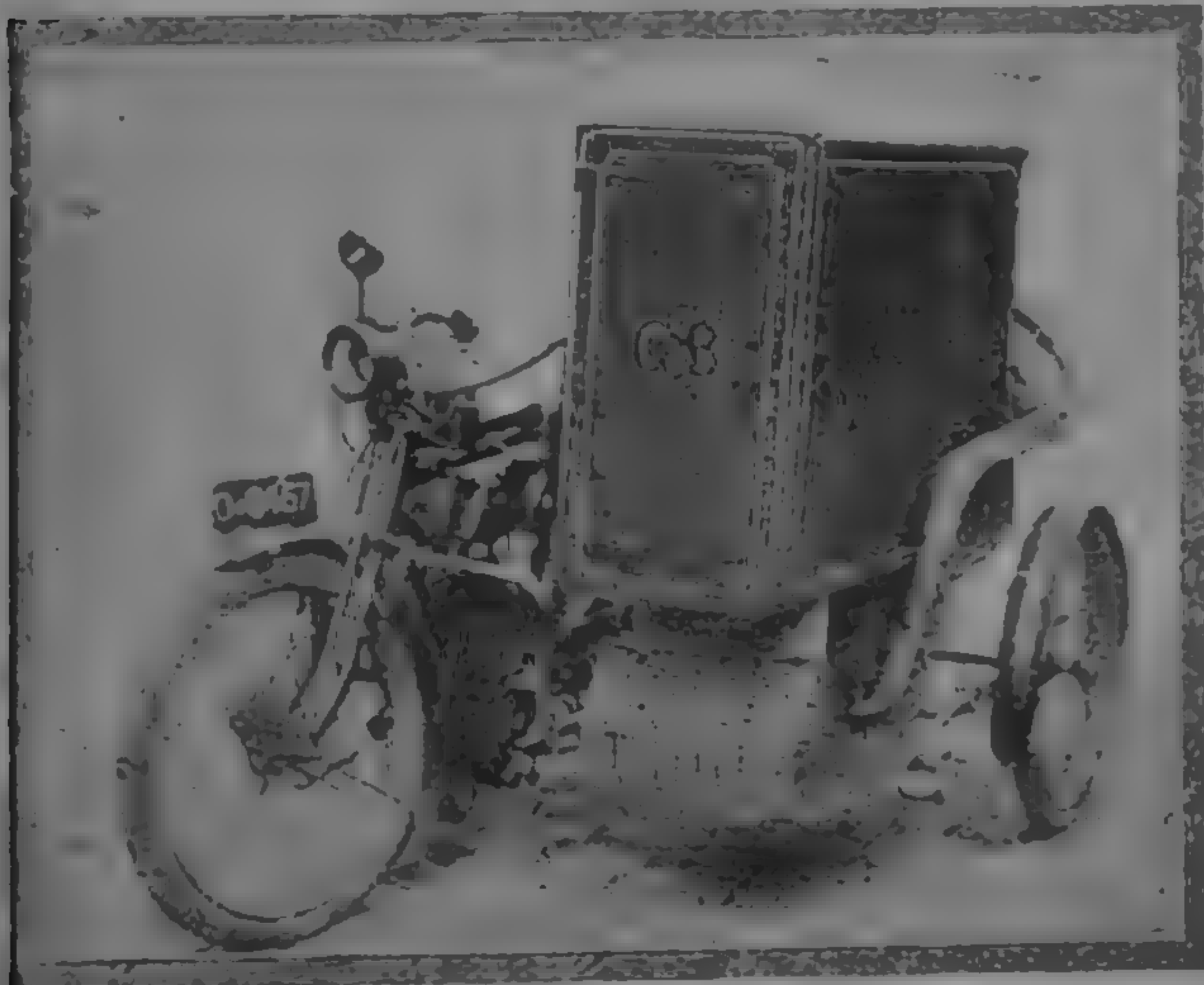
(2) Mr. King bought an Enfield box carrier, as supplied by the Enfield Co., but when he saw my original idea of a platform arrangement he discarded his box, following my example and making a platform carrier. This shows that the idea was my own, not copied.

Henry J. Stevens.

106, High Street, Walthamstow.

A Dual Purpose Combination.

I append a photograph showing how I convert my motorcycle and sidecar into a commercial car. By undoing one bolt through the seat the van can be lifted off for pleasure pur-



The limits in dual purpose economy.

poses. I use it for carrying scones and small bread, and I find it a great help in a push. This might be interesting to some of your readers, especially travellers, as it could be used for carrying samples, etc., and still be available for an afternoon spin.

Govan.

Carburettor Controls.

Mr. Michelmore Hitchcock's letter on "Commonsense Carburettor Control," in your issue of the 30th ult., is both interesting and instructive as an example of a motorist giving himself a lot of unnecessary bother to have manufactured a set of control levers, when, without any brain fag whatever, and perhaps considerably less wear and tear on his financial resources, he could have procured exactly what he has made by going to any motorcycle dealer and asking for a set of Senspray control levers.

The above-named gentleman might have made quite a good thing out of his invention if he had only had the good fortune to place his idea of "wire pulling" before the public in the year 1909 or thereabouts.

It is not very often that I burst forth into words, but it is getting quite alarming, the number of new (?) ideas that is being trotted out for home consumption. If the would-be in-

A30

ventors had only taken the trouble to look round first before rushing into print, they would find some of their ideas getting almost grey in the service of motoring, and there would be much valuable paper saved.

A. M. DILLON.

2, Bachelors' Walk, Dublin.

A Letter from Australia.

I often note in your journal, to which I am a regular subscriber, that you frequently publish correspondence from overseas readers. I have not noticed recently, however, any letters from Australian motorcyclists, and I thought you might care to hear of the conditions under which motor cycling is now carried on in the Dominion. I might state that I am the rider of a little Douglas, and have been following your journal for just on four years. It is with great interest that I watch your "Hints and Tips" columns. I heartily sympathize with London riders during the present petrol trouble, but the last number of your journal to hand seems to show that supplies are now a little better. The present price of petrol in Sydney is 2s. 6d. per gallon, but in the country I have paid as much as 2s. 10d.; quite enough, too, so we Australian motorists think. I have been longing to see what the old country is like, but now that hostilities are at their height, I have decided to wait. As I have no relatives or friends in England, I always grasp at the smallest chance of communicating with firms or companies in your land, even sending for goods that it is possible to procure out here. I wish you could find some friendly person who would care to write to an Australian, motorist preferred, and tell me all the news.

F. WILTON.

Care of Kodak, Ltd., 379, George Street, Sydney, Australia.

The Blackburn N.M.V.

Kindly include in your list of National Motor Volunteers Motorcycle Sections the Blackburn Group, Heavy Car Squadrons. We still have vacancies for motorcyclists. All applications should be made to the motorcycle officer, A. E. Beard, Headquarters N.M.V., St. Peter Street, Blackburn.

St. Peter Street, Blackburn.

A. E. BEARD.

Feeling for a Spark.

Your correspondent Mr. B. Bannerman is quite correct. If the plug is short-circuited, or, indeed, if any part of the circuit between the brush of the magneto and the terminal of the plug is making a contact with the frame, then no shock will be felt. It is necessary, therefore, to trace out the trouble by stages, viz., if no shock is felt, disconnect cable from plug and test if a shock is felt at the end of the cable, and so on. This is a rough-and-ready method of testing, but a very effective one if held up on the road by ignition trouble.

Birmingham.

"ELECTRO."

A Problem.

The following is a suggestion explaining the problem given by "M.B." in the New Year's issue of MOTOR CYCLING.

If the two high-tension wires were shorting, one to the other, and the front plug had its points closer than the back, then there is no reason why the front cylinder should not have fired in spite of the carbon brushes being changed over. I think the above is a more likely explanation than that suggested by "M.B.," for, seeing that it fired evenly when the brushes were correct, the timing of the magneto could not have been altered enough by the humourist to make it fire on one cylinder with the brushes reversed. I often reverse the brushes on my Indian, when leaving it in the road, as a precaution against theft; that is what aroused my interest in "M.B.'s" very interesting problem.

The same effect of the high-tension wires shorting might be caused by a dirty slip ring, causing one segment to short to the carbon brush that is not actually touching it.

WILFRED C. ROBINSON.

"Netherleigh," Castle Bar Hill, Ealing, W.

A Snow Occurrence.

I wonder if the following experience is unique: During the week-end before last I was caught in a miniature snowstorm. My belt-driven machine plugged on gamely with the belt slipping badly. This, however, ceased, until with quite a "bang" the pulley burst, and I found that it had been absolutely clogged up with solid snow!

E.G.N.

Derbyshire.

[Owing to pressure on our space we have had to hold over nine letters.—ED.]



# ALL PERMITS CANCELLED!

## NO MORE PETROL

We have received official intimation this morning that, with the exception of doctors' cars and machines directly engaged on work of National importance, **ALL PERMITS ARE CANCELLED!**

*Remember:*

**Car Licences expire April next!**

**Cycle Licences expire March next!!**

As it is quite impossible to communicate with the many buyers of our "PETROLIOR" spirit immediately by post, and it is probable that "PETROLIOR" may also be held up on the same date as Petrol,

## WE SUGGEST:—

By immediately conserving your last supplies of petrol—mixing it with, or running neat "Petrolior"—according to your machine's eccentricities of carburetter—you can eke out your last two allowances till restrictions are removed.

Supplies are limited—forward bookings will not be entertained, and orders are accepted in strict rotation only.

# PETROLIOR

**100,000 GALLONS SOLD LAST YEAR.**

### Prices:

5 Gallons Spirit	14/9	Package	3/9	Cash	18/6
10 " "	28/6	"	6/-	"	34/6
42 " "	115/6	"	10/-	"	125/6

IN LONDON STOCK—EX WORKS. Delivery will be effected as and when Carriers and Railway Companies will accept for despatch.

Cash must accompany all orders.

Packages allowed in full on return to our Works, carriage paid.

**PETROLIOR CO., 28, King Street, COVENT GARDEN, W.C.**



# Radco

## 1917

**The Example  
of Perfection  
in Lightweight  
Design.**

1 SILVER CUP,  
4 GOLD MEDALS,  
5 SILVER MEDALS.

**Awarded in 8  
Competitions.**

**MAGNIFICENT WEARING QUALITIES & RELIABILITY.**

"Dear Sirs,

"19/11/16.

"I have ridden one of your 'Radco' motorcycles since June, 1915, and in that time have covered about 15,000 miles in all weathers. I consider it a most excellent mount in every way.

"Yours truly, W. J. W., of Norwich."

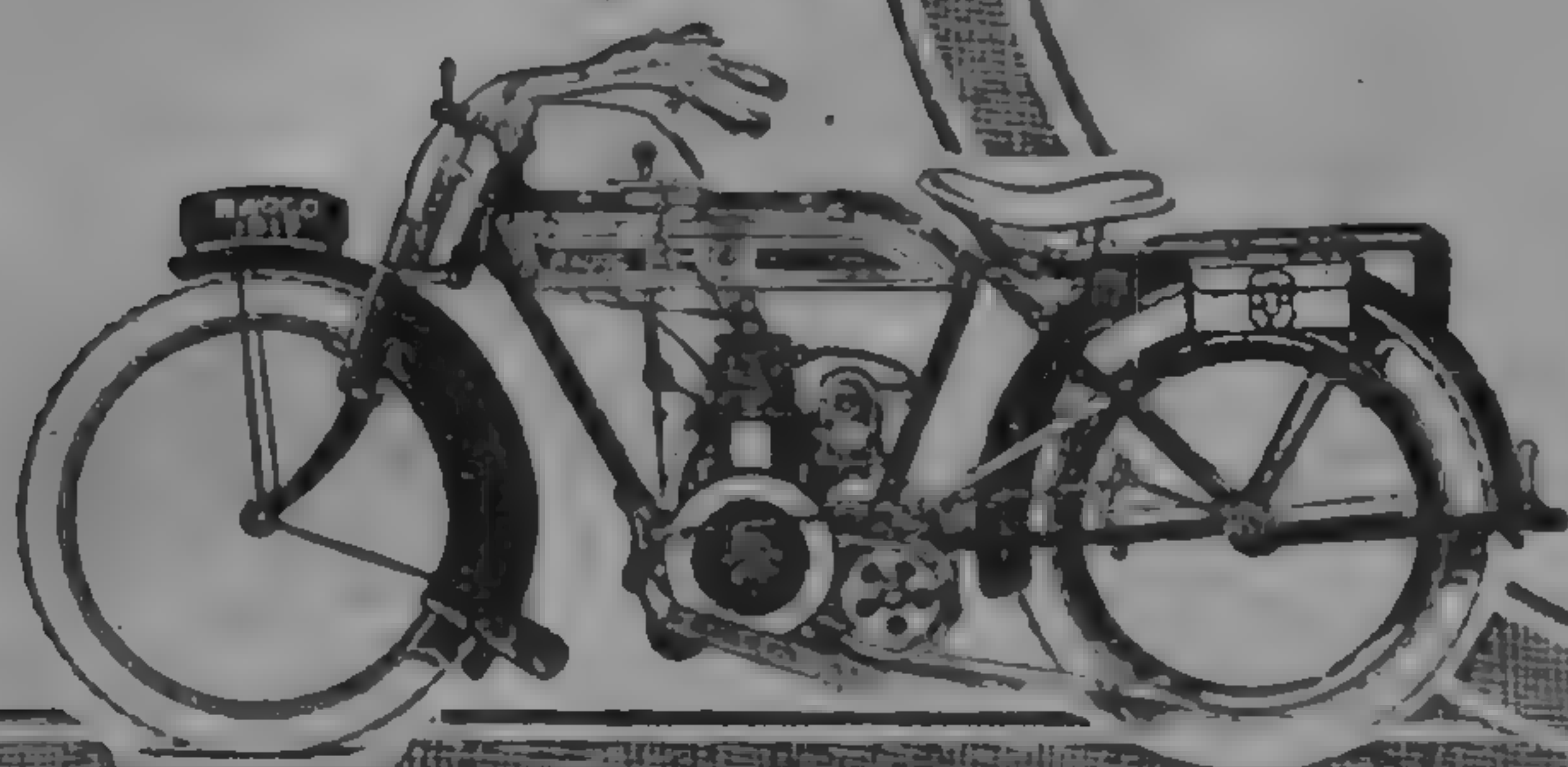
**PRICE—**

Gent's Standard Model	-	£27 15 0
" 2-Speed "	-	£35 0 0
Ladies' 2-Speed Model	-	£38 13 0

Write for Illustrated Booklet, showing all the Latest Improvements.

**E. A. RADNALL & Co.,**  
Dartmouth St., BIRMINGHAM.

Telegram—"Cyclic, Birmingham."  
Telephone—Central 897.



## The Light Car & Cyclecar

FOUNDED 1912.

*Obviously the Leading Journal.*

**Far and away the  
largest circulation  
of any similar  
publication.**



Every  
MONDAY,  
In Picture  
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More than four times the number of private advertisements of light cars and cyclecars (all bona fide modern machines) compared with any other medium.

The authoritative journal which founded the economical motoring of the light car and cyclecar movement, and the only journal which, in the interests of its readers, will not accept advertisements of cars that are not modern light cars, but are sometimes advertised elsewhere as such.

Does not confuse the reader by dealing with American cars and push them forward as if they were in the real light car movement, where economy is the first principle.

It is a British journal for users of British cars.



## Information and Advice (contd.).

**T.O.**—We have no out-of-date catalogues, and are therefore returning your stamps.

**E.R.W.**—We can only advise you to apply to the Polytechnic, Regent Street, London, W.

**H.K.H.**—(1) Incomprehensible. No matter what horse-power the machine is, the tax is £1. (2) See (1). (3) No. (4) No. (5) See (1).

**J.W.G.**—The retailers of the goggles which is provided with slotted metal eye-pieces instead of glass are Messrs. Gamage, Ltd., Holborn, London, E.C.

**E.B.**—To the best of our knowledge, at the present time the only vacancies in motor-cycling branches of H.M. Forces are in the R.F.C. Apply to the Polytechnic, Regent Street, London, W.

**P.E.**—It is impossible to fit up any starter arrangement for your N.S.U. The only plan would be to jack up the machine on the stand, pull the back wheel over compression, when, if the engine is in good tune, it should start.

**F.L.**—We expect that you would have some trouble on the steeper hills, but as we have not had experience of the latest Scott we cannot pass a definite opinion. For such a hilly district a 11 h.p. or 8 h.p. sidecar combination would be more suitable.

**H.M.S.**—It is an easy matter to test whether the belt or the clutch is at fault. Jack up the machine on the stand, engage the gear, and attempt to pull the engine over compression. If the belt slips round the pulley, shorten it. If it does not, it will be necessary to adjust the clutch wedges.

**L.W.M.**—(1) Practically all the substitutes available are suitable for you if you carry out the necessary vaporizing arrangements as constantly advocated in *MOTOR CYCLING*. (2) Yes, with the proviso as contained in (1). (3) Binks fuel is sent to you direct in 40-gallon drums. With regard to the others, see announcements elsewhere in this issue. Eccles near Manchester.

**W.F.G.**—It is impossible to inform a novice in a few words how to cut down his petrol consumption. We should advise you to obtain a new needle valve and jet from the makers of your machine. In all probability this will cut down the consumption considerably. Keep the extra air shutter open as much as possible. Thanks for information regarding the test bill, but that is hardly stiff enough.

**C.D.**—(1) You cannot fix a Philipson, but you can easily fit an Albion two-speed gear, obtainable from the Albion Engineering Co., Ltd., Upper Highgate Street, Birmingham. (2) If the magneto is a Dixie you need not worry about oiling it for some thousands of miles. (3) The reason for the exhaust pipe between the two cylindrical silencers being of smaller diameter than the exhaust pipe leading from the cylinder is that by the admittance of the gases into the first cylinder they have been permitted to expand considerably, and therefore are not of so great a pressure or heat as when leaving the cylinder. The smaller-diameter pipe has the effect of also assisting in the silence.

**Transferring.**—**H.R.**—Unfair as the case might be, we are sorry to say there is very little chance of your obtaining a transfer.

**Aluminium Number Plates.**—**R.F.**—No article dealing with aluminium number plates has appeared in *MOTOR CYCLING*. You may have seen some reference to the aluminium plates made by Messrs. Coan, 219, Goswell Road, London, E.C.

**Scope of Petrol Permit.**—**C.R.**—(1a) A petrol licence is always available for the purchase of unpurchased spirit, irrespective of the month, so long as the purchase per month does not exceed the amount stated thereon. (1b) See (1a). (2a) It is impossible to say. (2b) See (2a). (3) When the engine is hot, the tappets should only be just clear of the valve stems.

**Enlisting as D.R.**—**H.W.B.**—(1) In our opinion we should say it would be very doubtful, owing to your high medical category. (2) P. and M. (3) You would be required to so drive the machine as to prove that you were an expert motorcyclist. (4) The test for mechanical knowledge would be passed by any motorcyclist of two or three years standing. (5) No.

**Precautions with a New Machine.**—**T.H.**—(1) The only running-in process necessary with a new machine is to be quite sure not to drive the machine at more than 25 m.p.h. for the first 100 or 150 miles; longer if you have the patience. Lubricate, of course, freely. (2) Yes, we can certainly recommend Oildag, and, as you state, it is a very good chain lubricant. It should not be used in the gearbox or clutch. (3) Naturally, you cannot expect to get the same results with a substitute fuel as with petrol. You can, however, obtain very good results.

**W.B.**—At the present time it would be quite impossible to have a clutch and kick-starter fitted to your two-speed dog clutch gear.

**C.B.M.**—The Jardine four-speed gearbox is an excellent one and will give you a good service as any on the market. You need have no fear of it breaking down if it has fair treatment.

**W.D.B.**—We very much regret it is impossible for us to obtain you a petrol licence. We can only advise you to use one of the petrol substitutes, a list of which appears in this issue.

**R.C.**—The 5-6 h.p. Ariel is a very reliable and suitable machine for sidecar work. The same remarks apply to the 6 h.p. Enfield. Yes; the reasons you state should be taken into full consideration, and we should advise it.

**J.B.H.R.**—We should imagine that it would be quite an easy matter to fix up your Enfield gear lightweight so that it could be started by hand. It would be necessary, of course, to arrange for a chain to pass over a sprocket, which would be revolved by hand, running round another sprocket, to which was attached a third, meshing with either the low or the high gear chain. The dual sprocket could be fitted on a convenient stud.

*Will our readers reduce the needless trouble experienced in the working of this bureau by carefully obeying the rules, especially when a route query is made? "I. and A.," "Route," or "Legal" should be distinctly marked on the left-hand corner of the envelope or postcard.*

**R.H.**—(1) If the pipe were to be fitted in an easier curve it would be preferable, but the diameter is such that we do not think much back-pressure would be apparent. (2) We should advise you to write for the explanatory booklet of the Enfield two-speed gear, which you can obtain from the Enfield Cycle Co., Ltd., Enfield Works, Redditch. (3) Whilst there is no actual need for you to lift the valve when changing gear you will find it an easier job.

**C.M.**—(1) We should advise you to pay attention to the ignition. The platinum points should be adjusted so that they break a little more than 1 mm. The contact should be perfectly flush and the platinum polished. It would also be advisable to remove the high-tension terminal and clean this in petrol, and by wrapping a rag saturated with petrol round a pen-holder insert it into the high-tension orifice, and revolve the magneto. This will clean the collector ring. A new plug should be obtained, and preferably one with three points, such as the Lodge. A 30-jet would be more suitable, and when starting up the carburettor should be flooded, the air lever closed, the ignition fully advanced, and the throttle open one-third. (2) No, the 1 in. belt is quite suitable.

**Two-speed Hub Gear Repairs.**—**W.E.D.**—(1) Apply to Messrs. A. W. Wall and Sons, Roc Works, Hey Mills, Birmingham. (2) See (1).

**Sudden Momentary Seizure.**—**R.O.**—Without an inspection of the machine, it is impossible for us to surmise as to the cause of the trouble. There is just a chance, however, that a stone jammed the belt or chain. It might be the engine seized up for a moment. Failing this, again, the gearbox might be inspected for the cause of the stoppage.

**Importing Machines into India.**—**W.A.C.**—Whilst the Indian Government has prohibited the import of motorcycles, we expect that, taking into consideration your military rank, etc., that you would be able to import the machine, although we cannot, of course, bind ourselves to the opinion that this is so. If you were to make a special statement of your case to the Customs Department of the India Office, we imagine that you would get a favourable reply. If possible, of course, it would be better for you to take the machine with you, from the profitable point of view, but it is rather a risk paying carriage and not perhaps being able to import the machine on arrival. We regret we are unaware of any specific official whom you could approach. With regard to the Petrol Committee, if your application was sent in before the 24th January, there is no reason why they should not grant you a licence. We should advise you, if possible, to make a personal application at 19, Berkeley Street, W. The 2½ h.p. Lewis is an excellent little machine.

**F.G.L.**—We can only send you the lists we have available. We have dropped a line to the A.B.C. Co. and instructed them to forward you a list, and the matter is now in their hands.

**W.M.**—(1) The average petrol consumption of a Douglas is about 80 m.p.g. (2) 45 m.p.g. full. (3) read our rules. (4) If not particularly wise, you can attach a light sidecar with moderate success.

**Verdant Green.**—We expect that the trouble due to retarded ignition. The platinum points of the magneto should begin to separate when the piston is within 8 mm. from the top of the compression stroke. The silencer, etc., is quite in order.

**E.K.M.**—The tappet should be so adjusted that when the engine is warm there is barely clearance when the valves are on their seatings. You might fit light springs under the tappet head so as to keep them in constant contact with the valve stems.

**A.U.**—We cannot trace your previous communication. The only place where you can obtain parts for a N.S.U. machine would be Messrs. Eagles and Co., 275, High Street, Acton, London, W. We regret that we have no catalogue, so are returning your stamps.

**J.A.P. Engine Inquiry.**—**A.S.**—We should advise you to obtain a booklet which has just been published by Messrs. J. A. Prestwich and Co., Ltd., of Northumberland Park, Tottenham, which gives a full description, instructions for overhauling, etc., of the 6 h.p. engine as fitted to your Enfield.

**W.D.A.**—In our opinion, taking the entire case into consideration, we think the 2½d. an extremely low estimate when one takes into account the extremely high price of petrol, oil, etc. For the machine and sidecar we consider your committee should certainly allow you a minimum of 24d. per mile. Even so, we expect that the outfit would represent a loss when depreciation, insurance, etc., are reckoned with.

**Spare Parts Unobtainable.**—**A.H.**—Your only plan would be to insert an advertisement in the small advertisement columns of this journal. If the spare parts you require are obtainable, you will get an answer.

**Record Petrol Consumption with a James.**—**R.E.F.**—Sorry to say that we cannot trace the actual date, but the figure was 325 miles to the gallon, and was obtained by exceptional tuning. At the outset we did not believe the figure, but afterwards definite proof was placed before us.

**Back Cylinder Will Not Fire: Mixture Expelled.**—**H.L.**—We can only suggest that the exhaust valve is not closing. When the piston is on the compression stroke is the gap the thickness of a visiting card between the exhaust valve stem and tappet? The trouble cannot be due to carburation, else the front cylinder would not fire.

**No Compression on One Cylinder.**—**W.T.**—(1) We do not understand what you mean by a broken flange. If you refer to a broken valve seating, and there is consequently no compression in the front cylinder, this will certainly be the cause of this cylinder not firing. You can easily test for compression. We should advise you to overhaul the engine.

**Starting up Standard Zenith.**—**A.B.**—(1) We should advise you to apply to the Secretary, London Volunteer Rifles, 26, St. Pancras Road, N.W. (2) The only plan would be to fit a sprocket on the engine shaft, connect this up with a larger sprocket clipped to the saddle tube, which can be revolved by a suitable crank. (3) You can obtain a pair of Endrick decompressors from the Service Co., High Holborn, W.C. Personally, however, we should advise liberal injections, lower the gear about half-way, give a vigorous push, and when the engine has fired lower the gear a little more.

**Difficult Starting.**—**Regular Reader.**—We can only advise the following examination. Note that when hot there is just clearance between valve stems and tappets when the piston is on the compression stroke. See that the platinum points of the magneto are opening a little more than a millimetre. Examine the plug closely. It should not be oily, and the points should be 1 mm. apart. You do not state the make of magneto, but at any rate the platinum points should be opening and closing freely. The carburettor should be thoroughly washed out, and the petrol filler cap examined more to see if there is clear air-way into the tank. If there is still no improvement, the point where the carburettor is attached to the cylinder should be bound round with insulation tape, and the high-tension lead and high-tension brush examined. The latter should be removed, and a close inspection made for cracks, etc.



## Our Book Column.

By "Bas-Bleu."

*Under this heading will appear from time to time notes on new or standard works of interest to motor-cyclists.*

## How Much Have You Spent?

on your motorcycle during the last 12 months? Have you made an accurate statement of the expenses? Did you make a resolution to find out exactly how much the pastime is costing you, and did you find it very irksome to keep jotting down the various small items of replacements and repairs, etc., and did you finally give it up and say that you would not be bothered? The publishers of *MOTOR CYCLING* have anticipated your resolution and have produced a motor-cyclist's diary\* in which is found pages specially ruled for accounts, expenses of all kinds, and, in addition, spaces provided for fuel and oil consumption and mileage record. There are about 15 pages of the most useful information, including some of the well-known test hills, index marks, registration fees, taxes, gradients, cubic capacities of the principal engines, revolution tables, etc. etc. This excellent little diary contains space for register of letters sent and received, cash accounts, memo. of things lent, and, in fact, the use of this diary constitutes a record file, containing information which from time to time it will be found valuable to have as reference.

The publishers have just a few of these diaries left, and it is highly advisable that you should secure one before the supply is exhausted. The price of the diary is 8d.; post free 9d., bound in charming green cover and handy size for the waistcoat pocket.

It was a happy thought one day to ask the leading motorcycle riders, who, of course, are usually responsible for providing those elusive extra miles per hour from their machines, to set down for the benefit of posterity those little "secrets of tune" which have always been the talk of Brooklands and meetings of competition riders. The result was a little sixpenny handbook,† bearing this title, and giving the practical illustrations to the power units of well known machines carried out by our foremost riders in the days before the war. Many of these men, nearly all, in fact, are now in the services, and some, alas! as with the late Lieut. O. C. Godfrey, we shall see no more, but their valuable knowledge has been preserved. It is a book which instructs the ordinary man upon getting the best results out of his machine, and it contains a special section, giving general hints on "Tuning for Speed" by that well known competition rider, S. R. Axford.

\* *MOTOR CYCLING* Diary, 1917, 8d. net, post free 9d. † "Secrets of Tune," 6d. net, post free 8d. Temple Press Ltd., 7-15, Rosebery Avenue, London, E.C. (Wholesale—E. J. Larby, Ltd.)

## INFORMATION &amp; ADVICE.

## Questions Answered through the Paper.

**RULES**—Questions on technical matters, advice in selection of a new machine, etc., will be answered in the next issue after receipt of the inquiry so far as possible. Letters or postcards must be marked "I. and A." in top left-hand corner. Questions must be numbered, and a copy kept for reference. Machines upon which an opinion is sought should be numbered. Replies can also be sent by post if a stamped addressed envelope for that purpose is enclosed. Routes and legal queries are answered only by post. Catalogues of motorcycles or accessories which will materially assist in the choice of a machine or its equipment, can be sent if two penny stamps are enclosed.

F.A.P.—There are no vacancies.

P.L.—We are not in a position to give advice such as you require.

H.A.M.—The Binks. We have no catalogues, and are therefore returning your stamps.

H.C.N.—(1) No, we should prefer an Auto-Wheel. (2) Yes. (3) No. (4) We should advise the lightweight B. and B.

H.E.J.—(1) Certainly not. (2) See 1. (3) No.

G.C.—Sorry to say we are unaware of any device suitable for your needs.

G.B.A.—You are correctly informed; it is impossible for you to obtain a petrol licence unless you applied before the 24th January.

J.W.—(1) The address of the Scott Engineering Co., Ltd., is Saltaire, Yorkshire. (2) A few. (3) They would inform you. (4) Yes. (5) See 1.

## CATALOGUES

1916 catalogues of most motorcycles and accessory concerns can be supplied if an indication of requirements and the amount desired to spend are given, and two penny stamps enclosed with the application.

## TECHNICAL ADVICE

Readers are strongly urged to purchase "Motor Cycling Manual" and "The Art of Driving a Motorcycle," illustrated works of great value to expert and beginner alike. There are shilling editions of both published by Temple Press Ltd., or by post from our offices, 7-15, Rosebery Avenue, London, E.C., 1s. 3d. each.

T.—Certainly, you would find the fitting of a Philipson pulley would improve the hill-climbing properties of your 2½ h.p. lightweight considerably.

G.E.M.—(1) Yes; about 85 m.p.g. (2) Very. (3) Yes. (4) About 70 m.p.g. (5) Not very much greater. (6) Purely a matter of personal choice; both would be quite suitable.

J.F.P.—You can only obtain Nos. 1 and 2, both of which would be quite suitable for your purpose. The top m.p.h. and m.p.g. in each case is about the same, i.e., 44 and 50.

G.W.F.—If you apply to the London depot, of Messrs. Douglas Bros., in Newman Street, London, W., you will find that they have several second-hand machines to show you.

H.H.D.—We very much regret that we have no issues of *MOTOR CYCLING* dated 14th December, 1915. Perhaps a reader of this paragraph will oblige with a copy, and we will forward it to you.

H.J.—As the machine is to be used for purely business purposes, you may be able to obtain a licence from the Petrol Control Committee. We think, however, that you will have some difficulty. Apply to 19, Berkeley Street, London, W.

G.O.—It is impossible to give you instructions in a letter. We can only suggest that you get into communication with Messrs. A. W. Wall and Sons, Race Works, Hey Mills, Birmingham. You will have the utmost difficulty in getting any repair work done unless you can claim priority.

G.G.O.—There are no vacancies to the best of our knowledge.

H.C.—Apply to the Polytechnic, Regent Street, London, W.

C.N.—We are unaware of the device you mention. It certainly has not been put on the market.

T.B.—Since the date mentioned, we have tested the easy starter on a two-stroke, and found that it is very satisfactory indeed.

F.P.—There are several cases similar to yours. We are taking up the matter with the Petrol Committee, and we hope for satisfactory results.

P.L.H.—Unless you are at the present time in possession of a petrol licence, it will be impossible for you to obtain any fuel, and we regret we cannot help you in the matter.

H.W.—(1) No, there is no chance of the valve head falling into the cylinder. (2) About 35 m.p.h. (3) 27. (4) The petrol level will be correct if the needle valve has exactly ¼ in. play.

L.C.H.—We cannot give any advice with regard to second-hand machines, as these vary so greatly in condition. Incidentally, we should imagine that the machine is older than the date mentioned.

E.H.W.—The machine is a good one, and we can recommend it, but, of course, cannot guarantee as to the condition of the second-hand machine. Undue wear does not take place at the lips of the ports through the piston passing and repassing.

J.G.E.—Three-speed gearboxes are quite unobtainable at the present time. You will have to wait until a happier period before you can obtain what you require. No catalogues of the Indian opposed twin are yet available, and, in all probability, the machine will not be marketed in England in its present form.

**Motoring Branches Open for Enlistment.**—G.W.C.—(1) R.F.C. Apply to the Polytechnic Regent Street, London, W. (2) There is just a chance. Apply to Grove Park, London, S.E. (3) See above.

**Enlisting as D.R. in R.E. and R.F.C.**—C.H.—(a) At the present time there are none. (b) Conditions vary. In some instances motor-cyclists are asked to sign on for four years and four years in the Reserve. We think, also, matter of fact, you will have the utmost difficulty in getting a transfer, and cannot hold out any hope of this for one moment.

**Partial Seizure.**—J.G.—(1) If the engine has not seized up, there is no necessity for an overhaul. At least one pumpful should be given every 10 miles, preferably half a pump or more every five miles. If the tap is turned in the proper direction, provided a two-way tap is fitted, there is no reason why the pump should not depress easily. We should advise you to drain the oil out of the oil tank, flush out the pump mechanism with paraffin. It would also be advisable to dismantle the oil pipe and see it is quite clear, together with the union where it is screwed into the crankcase. (2) See 1. (3) You can use ordinary engine oil for the gearbox. (4) If you fit a very light sidecar, it would be advisable to lower the gear ratios. If the pulley of the gearbox is an adjustable one, it is an easy matter; if not, you should have a slightly smaller engine sprocket fitted. (5) If the air and throttle levers close, the cover-plate should be removed and an inspection made. We expect that if clean, with the locking nut tightened up, the controls will be quite stiff. Failing this, cut a thin leather washer and interpose.





## THE MASTER TWO-STROKE

We can now give immediate delivery from stock of the Famous 2½ h.p. "POPULAR" Model at

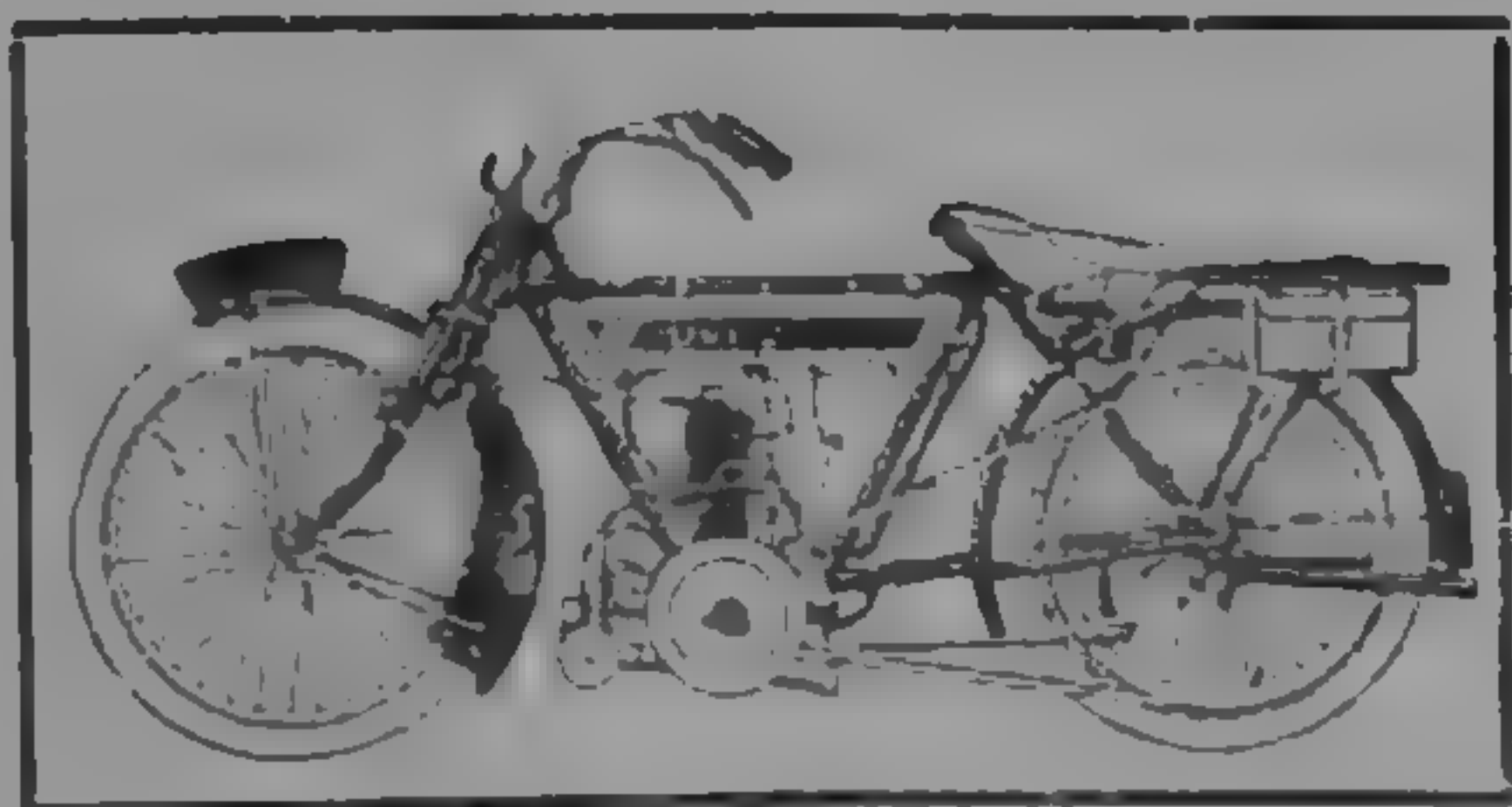
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**£47 - 10 - 0**

We shall be pleased to send details of this, the admitted Leader of Lightweights.

**BUTTERFIELDS, LTD.,**  
Designers, Patentees and Manufacturers.  
**STECHFORD . . Birmingham.**



Photograph of Piston Heads after Test. ("Motor Photo")

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# 1,250 Miles on 1 Gallon of CASTROL "C" (Summer).

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The engine (Shelsley Crossley Car) remains in first-class running order, the piston heads and the bearings being in perfect condition.

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# Motor Cycling Mart

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### MOTOR-BICYCLES.

—A.B.C., 1915, 3½, 4 speeds, clutch and kick-starter, condition as new, P. and H. lamps, Lucas horn, tools, and spares, expert examination, must sell, £65, or near offer. West End Garage, Hereford. 379-e460

—ABINGDON, 3½hp, 1912, free engine, etc., perfect, £15; semi-canoë sidecar, £3 10s. Smith, 199b King St., Hammersmith. 379-e387

—A.J.S. and sidecar, 6hp, late 1913, lovely condition, 3-speed, kick-start, hood, screen, speedometer, lamps, etc., £70. Bates, 146 Ladbroke Grove, W. 379-e444

—A.J.S., 1914, 2½, 3-speed, clutch, kick-start, guineas. Troward's, 78 High St., Hampstead. 379-844

—A.J.S., 1915, 6hp, fitted with new A.J.S. sidecar, lamps and horn, price £85. Fryers, Hereford. 379-865

—ALLOYS Matchless, 1914, 4hp, clutch, handle start, 19 guineas, with coach sidecar 24 guineas. Troward's, 78 High St., Hampstead. 379-832

—ALLONS, full range of 1917 models for immediate delivery. Colmore Depot, 31 Colmore Row, Birmingham. zzz-522

—ALLON, Colmore Depot, Birmingham and Manchester, for immediate delivery of Allon 2-strokes. zzz-231

—ALLON, 1915-16, carefully used, enamel, plating like new, fine running order, accessories, £23 10s. 47 Picquet Rd., Anerley, S.E. 379-e409

—ALLON, 1916, 2-stroke, new Palmer cord back tyre, lamps, speedometer recently overhauled, good condition, £25. Kean, Milton Hotel, New Milton, near Bournemouth. 379-1344

—ALLON, 1916, 2½hp, 2-stroke, equal to new, with speedometer and lamp, a bargain, £31. Jackson, 100 High St., Guildford. 379-e369

—ALLON de luxe, 1916, 2-speed, clutch, kick-start, special mudguards and shields, equipped, guineas; 1916 standard, 2-speed Allon, 29 guineas. Troward's, 78 High St., Hampstead. 379-831

—ARIELS. Colmore Depot, Birmingham, Manchester, Liverpool, and Leicester, for all models of Ariels. zzz-232

—ARIELS. I can give immediate delivery of 5-6 1917 Ariels, combination. I can also deliver immediately 1917 3½hp solo or combination. Jones, Garage, Broadway, Muswell Hill. 379-885

—ARIEL, 1913, variable gear, 3½hp, re-enamelled, guineas. Troward's, High St., Hampstead. 379-840

—AUTO-WHEEL, B.S.A. model, 12 guineas; also 1914 standard, £7 10s.; deferred terms if desired. Lamb's, 151 High St., Walthamstow, and 50 High Rd., Wood Green. 379-792

—BAT.J.A.P., 1914, 6hp, T.T., described "Motor Cycling" 26th December, grand condition throughout, selling owing to walking accident, £40. Thom, 32 Second Ave., Selly Park, Birmingham. 379-e446

—BOWN-VILLIERS, 1915, 2½hp, 2-stroke, T.T. model, cash £14 10s. bargain. Leslie Driver, Ivydene, Mulgrave Rd., Sutton, Surrey. 379-e355

—BRADBURY 1913-14 combination, 4, Bosch, 3 speeds, clutch, lamps, nice condition, bargain, 29 guineas; exchanges, easy terms arranged. Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). 379-1270

—BRADBURY, 3½hp, N.S.U. 2 speeds, in real good order, £16. Percy and Co., 337 Euston Rd., London. 379-863

—BROWN, 3½, Bosch, Dunlops, N.S.U., faultless, £14. 43 Princess Rd., Holland Park. 379-e966

—B.S.A., 1915, 4½hp, chain drive, 3 speeds, Millford sidecar, £60. Hastie, Ebberly, Stroud. 379-e587

—B.S.A., 1915, 4½hp, chain drive, with coach-built sidecar, carefully looked after, guaranteed, 55 guineas. Jackson, 100 High St., Guildford. 379-e367

—B.S.A., 1915, 4½, 3-speed, chain-cum-belt, Canoelet sidecar de luxe model, latest draught-proof windscreen, condition guaranteed, £58. Easting, 59 Abbey Rd., Bearwood, Birmingham. 379-1340

—B.S.A., 4½hp, countershaft 3-speed, clutch, new condition, perfect throughout, fully equipped, 1914-15, 39 guineas. 245 Hammersmith Rd., London, W. 379-e383

—B.S.A. model K, late 1916, new November, and Middleton coach-built sidecar, ridden 200 miles, £70. Cycle and Motor Works, Well Hall, Eltham. Apply between 9 and 12 a.m. 379-e396

—B.S.A., 1916, 4½, chain drive, cane sidecar, 1500 miles, fine condition, £60. Binns, Chapel St., Greasbro', Rotherham. 379-e412

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—B.S.A., late 1913, 2-speed, kick-start, chain drive, splendid condition, £35. Braddock, Draper, Marple. 379-e447

—B.S.A. latest new models in stock: chain drive Model H, 3-speed countershaft gear, £66, chain-cum-belt Model K, £64; sidecars in stock to fit from 10 guineas; your present machine can be taken as part payment. Elce and Co., 15 15 Bishopsgate Avenue, Camomile St., E.C. 379-852

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—B.S.A., 1913, 3½hp, free engine, in first-class condition, £21. Percy and Co., 337 Euston Rd., London. 379-864

—B.S.A.s, 1917, model K and H, actually in stock, for immediate delivery for cash; deferred payments, or exchanges with up-to-date machines. Jones's Garage, Broadway, Muswell Hill. Phone, Hornsey 2562. 379-887

—B.S.A., 1917, 4½hp, Model K, £64; delivery from stock. D. J. Shepherd and Co., Enfield Highway, N. 379-881

—B.S.A., 1913, and Millford cane sidecar, 2-speed; pedal starter, unused for 2 years, perfect condition, £31. 15 Warwick Court, Holborn. 379-e376

—B.S.A.s, both 1917 models, actually in stock, deferred payments, exchanges, highest prices paid for good second-hand up-to-date machines in exchange; also 1915 model K and Phoenix sidecar, heap accessories, £58 10s., deferred terms if desired. Lamb's, 151 High St., Walthamstow, and High Rd., Wood Green. Telephones, Walthamstow 169 and Hornsey 1956. 379-795

—CALTHORPES, Colmore Depots, Birmingham, Manchester, and Liverpool, for Calthorpe motorcycles. zzz-236

—CALTHORPE Junior, 1914, 2hp, 2 speeds, countershaft, in splendid condition, recently overhauled, £16. A.K., 14 Norwood Rd., Southall, Middlesex. 379-e461

—CALTHORPE 1917 models in stock at P. J. Evans, John Bright St., Birmingham. The Birmingham and Midland Agent. Two-strokes; four-strokes, and 4-5 twin J.A.P. combinations also lady's models. 379-817

—CALTHORPE-J.A.P., 2½, 1915-16 Enfield, 2-speed and clutch, all accessories, splendid condition; after 6. 34 Finsbury Sq., E.C. 379-1339

—CALTHORPE-J.A.P., 1916, 2½hp, 2-speed, new condition, £26. P. Penwright, Newtown, Arlesey, Beds. 379-e407

—CALTHORPE-J.A.P., 1915, 2½hp, Enfield 2-speed gear, as new, £29. William Betts, Ltd., 55 Upper Richmond Rd., Putney. Phone, Putney 1766 and 1698. 379-873

—CALTHORPE-J.A.P.s, 2-speed models, in stock, 38 guineas, deferred terms if desired; also 1915 2-speed and accessories, fine order, £27 10s., deferred terms if desired. Lamb's, 151 High St., Walthamstow, and High Rd., Wood Green. 379-793

—CHATER LEA, 1915, 8hp, twin, Precision, 3 speeds, countershaft, chain driven, kick-starter, exceptional comfortable coach-built sidecar, 3 in. back tyre, in perfect order and condition, a bargain, £45. Percy and Co., 337 Euston Rd., London. 379-865

—CHATER-MINERVA, 3½hp, Bosch, spring forks, drop-top tube, climb anything; or exchange for good lightweight, £12, bargain; cash adjustment. Aldridge, 12 Sunderne Rd., Chertsey, S.E. 379-e410



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—CLYNO, 1915, 6hp, with No. 6 sidecar, with screen, spare wheel, Palmer cord steel-studded tyre on back wheel, light car tyres all wheels, special military finish, as new, with Lucas lamp set, horn and Jones speedometer, £85, without accessories £80. Can be seen in London at any time. A magnificent outfit, especially suitable for officer. Box No. 8405. c/o "Motor Cycling." zzz-452

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—CONNAUGHT, 1916, lamps, horn, new condition, £24. 32 High St., Peckham. 379-c355

—CONNAUGHTS, 1917 models in stock, prices from £28 17s. 6d. Retail Agent, P. J. Evans, John Bright St., Birmingham. 379-818

—COVENTRY EAGLE 1916 combination, countershaft, 3-speed, £67 10s. Collier, Deal St., Halifax. 379-660

—DOUGLAS, Colmore Depot, Birmingham, Manchester, Liverpool, and Leicester, for earliest delivery of Douglas motorcycles. zzz-225

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—DOUGLAS, wholesale and retail West of England agents, Moffat, Yeovil. Tel., 50. 404-d270

—DOUGLAS, 2½, 1911 (unused August, 1914, till June, 1916), in splendid condition, any trial allowed, £20. Kemp, 1 Coldharbour Pl., Denmark Hill, S.E. 379-c405

—DOUGLAS, 1916, 2½hp, 3-speed gear, clutch model, complete with lamp, speedometer, and accessories, a genuine bargain, £47 10s. Jackson, 100 High St., Guildford. 379-c370

—DOUGLAS, T.T., late 1913, 2-speed, perfect condition, large Brooks saddle, £29. Reynolds, Waterbeach, Cambs. 379-1328

—DOUGLAS, 1915, 2½, 2-speed, T.T. model, bargain, £38. Manning, 85 South End Rd., Haverstock. 379-c453

—DOUGLAS, 1915, 2-speed, all accessories, perfect, £40. 11 Luna Rd., Thornton Heath Station. (After 7.30.) 379-c436

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—DOUGLAS, latest War Office model, mileage under 500, lamps, horn and accessories, indistinguishable from new, £50; or exchange higher power. Vernon, Ember Lodge, Esher, Surrey. 379-c462

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—DOUGLAS, 1915, 2½hp, model U, 3-speed gear, footboards, upturned or touring bars, lamps, horn, speedometer, in perfect order, £50. Robinson's Garage, Green St., Cambridge. 379-828

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—DOUGLAS 1915 4hp combination, equals new, 3 speeds, £65.

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—DOUGLAS, 1916, 2½hp, 3 speeds, lamps, mechanical horn, speedometer, etc., all as new, bargain. The Barnes Motor Garage, opposite Red Lion, Barnes, S.W. 1743 Hammersmith. 379-876

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NEW IMPERIAL, 2½ h.p., 2-sp. 38 gns.	
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ZENITH-GRADUA, 7½ h.p., twin .. ..	262

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The following is a selection from our large stock of machines of all types:—

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ALLON, 1916, 3½ h.p., 2-str., 3-speed .. ..	33
MATCHLESS, 1916, 6 h.p., 2-speed, clutch, and kick-starter, all accessories .. ..	38
ZENITH, 1916, 3½ h.p., Gradua gear .. ..	30
CALTHORPE, 1915, 2½ h.p., 2-stroke, 2-speed, headlight, rear lamp, horn, and speedometer .. ..	28
VINDEC, 1911, 5 h.p., 2-speed, headlight, rear lamp, horn and coachbuilt sidecar .. ..	22
DOUGLAS, 1915, 2½ h.p., War Office model .. ..	50
TRIUMPH, 1914, 4 h.p., 3-speed .. ..	40
JAMES, 1916, 2½ h.p., 2-stroke, 2-speed, lamps and horn .. ..	38
ROYAL ENFIELD, 1914, 3 h.p., twin, 2-speed .. ..	32
DOUGLAS, 1910, 2½ h.p., lamps and horn .. ..	15
CALTHORPE J.A.P., 1915, 3½ h.p., 2-speed, lamps and horn .. ..	30
NEW IMPERIAL J.A.P. 2½ h.p., T.T. model, 3 speeds, Cowey speedometer .. ..	33
ALLON, 1916, 3½ h.p., 2-stroke, 3 speeds, Lucas lamps and horn .. ..	38
ARNO, 1916, 3½ h.p., T.T. model, lamps and horn .. ..	33
ALLON, 1915, 3½ h.p., 2-stroke .. ..	25
CALTHORPE J.A.P., 1915, 3½ h.p., 2 speeds .. ..	27
TRIUMPH, 1913, 3½ h.p., Bowden countershaft 2-speed gear, clutch and kick starter .. ..	28
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RUDGE, 1913, 3½ h.p., 2-sp., lamps, horn, mirror, new coach built sidecar .. ..	35

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Official Repairers to  
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Telegrams: "Egaraco, London."

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—DOUGLAS, 1914, 2½, semi-T.T., 2-speed, Stewart speedometer, in good condition, £37 10s. William Betts, Ltd., 96 Upper Richmond Rd., Putney. 'Phone, 1766 Putney. 379-871

—DOUGLAS, 1916, War Office model, 2½hp, 2-speed, new tyres, just been re-enamelled, £52 10s. Wm. Betts, Ltd., 96 Upper Richmond Rd., Putney. 'Phone, 1766 Putney. 379-870

—DOUGLAS, model W, new December, 1915, clutch, kick-start, Lucas lamps, horn, complete kit tools, pump, under 1000 miles, excellent condition, £54 10s. Robinson's Garage, Green St., Cambridge. 379-825

—EDMUND spring-frame motorcycles, immediate delivery from stock from sole London agents, Waverley Cars, Ltd., 115 Gt. Portland St., London, W. zzz-196

—EDMUND J.A.P., 1917, spring frame, Enfield gears, equipped, cost £50, illness cause sale, mileage 100. 41 guineas. Troward's, 78 High St., Hampstead. 379-845

—ENFIELD combinations. 90 guineas; 3hp twin, £57 10s.; 2-speed 2-stroke, £45; delivery from stock. Exeter Motor Cycle Co., Ltd., 7 Bath St., Exeter. zzz-325

—ENFIELD, 1916, 6hp combination, mileage about 1200, £81 10s. Collier, Deal St., Halifax. 379-659

—ENFIELD, 1916, 3hp, condition and appearance perfect, kick-starter, lamps, speedometer, watch, £44. Ford, 281 Upper Richmond Rd., Putney. zzz-113

—ENFIELD, 1914, 6hp combination, 3 in. tyres, lamps, horn, tools, many spares, excellent condition, £55 cash; seen after 7 o'clock or on Saturday afternoon or Sunday Challis, 11 Allfarthing Lane, East Hill, Wandsworth. 379-c404

—ENFIELD, 1914, 6hp combination, coach-built, 2 lamp sets, speedometer, new condition, any trial, £48. 29 St. Leonard's St., Bow. 379-c395

—ENFIELD, 1916, 3hp combination, 2-speed, clutch, lightweight, coach-built sidecar, smart turn-out, fully equipped, almost new, 47 guineas. 245 Hammersmith Rd., London, W. 379-c385

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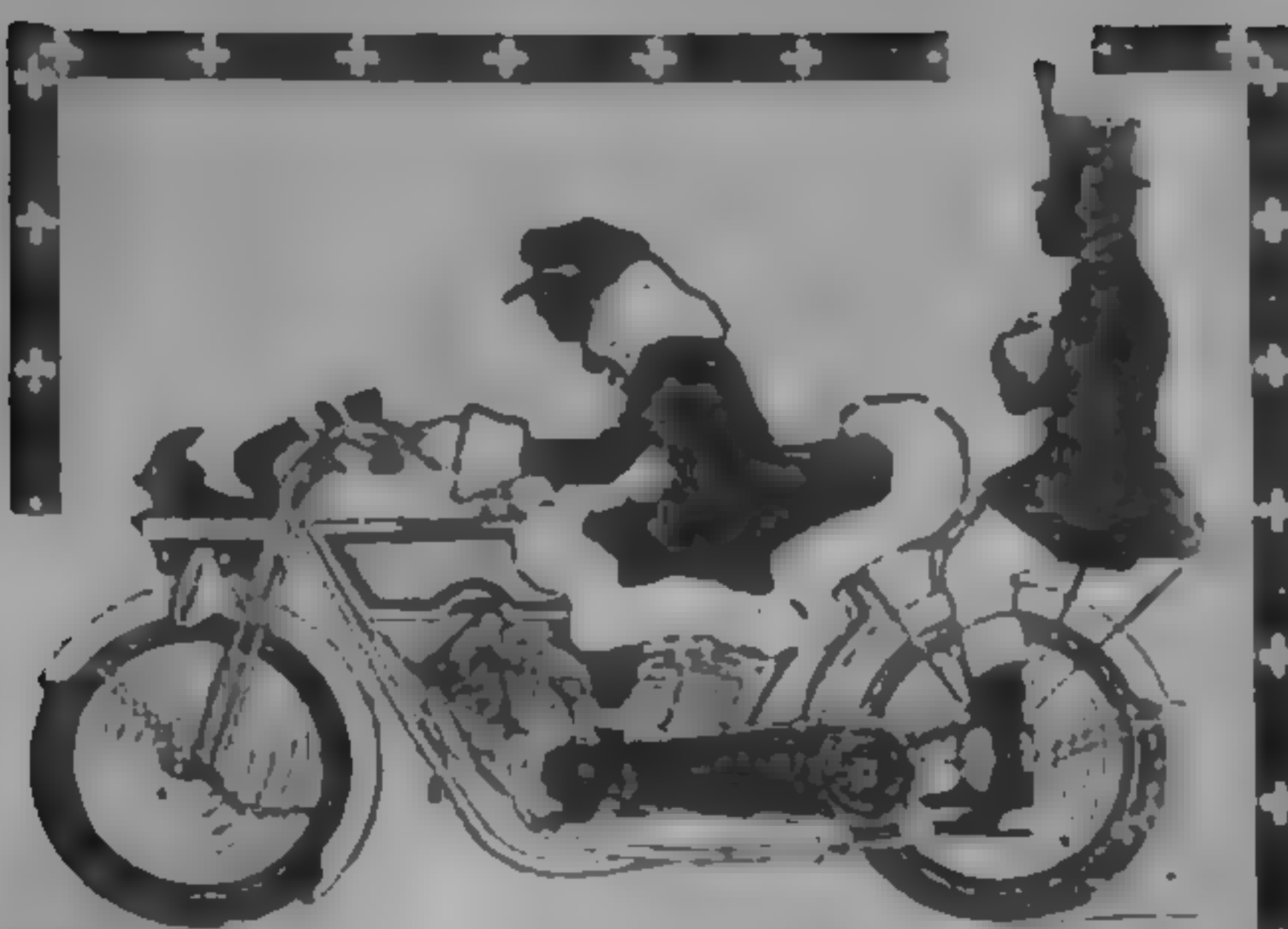
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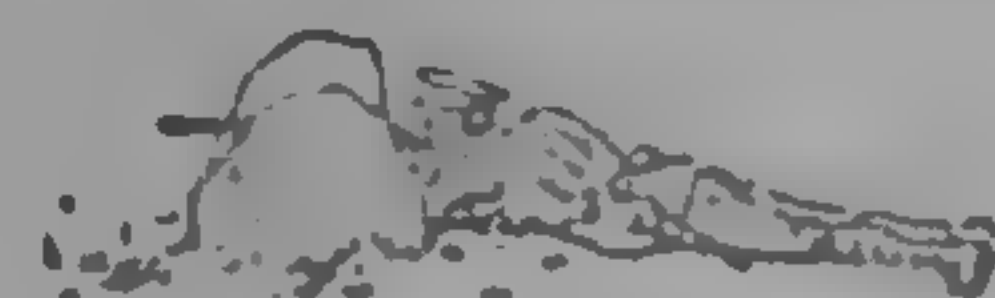
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—RAGLAN, 1914, 3 1/2 hp Triumph engine, smart and good, £19 10s. Collier, Deal St., Halifax. 379-668

—REX, 3 1/2 hp, magneto, spring forks, good order, £12 10s. Collier, Deal St., Halifax. 379-664

—REX 1912 coach-built combination, 6hp, twin, Bosch, handle starting, £26 10s. Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). 379-1275

—REX, 1913-1914, 6hp, 2 speeds, free engine, overhauled, re-enamelled, new tyres and belt, £30. Smith, 16 Haverstock Hill, opposite Chalk Farm Tube station. 379-e422

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LORE.*"A man cannot tell for  
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mise rightly, see that your  
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89

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goods:—

18th July, 1916.

Dear Sirs,

With reference to my  
small advertisement in  
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4th July, 1916, of my  
Patent Auto-Vac Petrol  
Economiser, up to the  
time of writing I have  
received 89 ACTUAL  
ORDERS and 15 en-  
quiries which invariably  
lead to sales. "Motor  
Cycling" gets at them,  
and I am satisfied.Gordon's Motorcycle  
Works,  
Royston, Herts.



—**REX**, 5hp twin, 1914, free engine in back wheel. In first-class order and condition. £18. Percy and Co., 337 Euston Rd., London. 379-865

—**REX**, 1911, 3½, Bosch, B.B. variable jet, new Dunlop, adjustable pulley, bargain, £10, must sell, called up; appointment. 22 South Lane, Kingston. 379-1336

—**ROVERS** Colmore Depot, Birmingham and Manchester for quickest delivery of Rover motor-cycles. 222-229

—**ROVER**, 3½hp, 2-speed, free-engine clutch, very good order and condition, £25. Collier, Deal St., Halifax. 379-665

—**ROVER**, 1914, 3½hp, 3 speeds, underslung coach-built sporting sidecar, in perfect condition, £38. Percy and Co., 337 Euston Rd., London. 379-857

—**ROVER**, 1914, 3½hp, 3-speed, clutch, new coach-built sidecar, accessories, good running order, £43. Phillpotts, 52 Lyncroft Gdns., West Hampstead, London. 379-c371

—**ROVERS**, 1917, in stock, countershaft and direct-drive models, also complete de luxe combinations, prices from £57 10s. P. J. Evans, John Bright St., Birmingham. 379-816

—**ROVER** combination, coach-built, 3½hp, 3 speeds and clutch, good condition, £48. P. J. Evans, John Bright St., Birmingham. 379-822

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—**RUDGE**, 1912, 3½hp, free engine, good condition, £25. R. E. Jones (Garages), Ltd., Swansea. 222-381

—**RUDGE**, 1913, 3½hp, Multi gear, coach sidecar, very smart lot, £36 10s. Collier, Deal St., Halifax. 379-663

—**RUDGE**, 3½hp, 2-speed, free engine and coach sidecar, £25 10s. Collier, Deal St., Halifax. 379-627

—**RUDGES**, 1913, T.T., special engine, 22 guineas, N.S.U. 2-speed gear, and sidecar, 11 guineas. Troward's, 78 High St., Hampstead. 379-847

—**RUDGE-MULTI**, 5-hp, 1915, speedometer, lamps, horn, etc., together with Middleton coach-built sidecar, excellent condition, a great bargain, price £42 10s. Longman Bros., King St., Acton. Rudge Specialists. 379-781

—**RUDGE-MULTI**, 1917, 3½hp, £64 15s.; delivery from stock. D. J. Shepherd and Co., Enfield Highway, N. 379-880

—**RUDGE-MULTI**, 3½hp, new, cash £64 15s., easy terms £71 5s. R. E. Jones (Garages), Ltd., Swansea. 222-30

—**SCOTT**, late 1912, and sporting coach-built sidecar, nice lot, £30. Percy and Co., 337 Euston Rd., London. 379-862

—**S.P.K.**, 3½hp, 3-speed countershaft, chain drive and sidecar, £25 10s. Collier, Deal St., Halifax. 379-670

—**SUNBEAM** 1915 3½hp 3-speed combination, fully equipped, excellent condition, £80, etc., etc. R. E. Jones's Garages, Ltd., Swansea. 222-32

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—**SUNBEAM** 1916 combination, a genuine bargain, owner called up, 3½hp, 3-speed gear, hand control clutch, Standard model, with all accessories, first cheque secures at 80 guineas. Jackson, 100 High St. Guildford. 379-c366

—**SUNBEAM**, 1915, 2½, splendid condition, with accessories, £60, no offers. Glaser, 3 Henley Villas, Chesterton Rd., Birmingham. 379-1342

—**SUNBEAM**, late 1915, 3½hp, 3-speed combination, lamps, tools, in good condition, has been carefully used, £65. Lockhead, 11 Hove Lodge Mansions, Hove, Sussex. 379-1341

—**SUNBEAM**, 1915, 3½hp, 3-speed, countershaft, hand-controlled clutch, very good condition, 2 lamps, horn, usual tools, £60. Robinson's Garage, Green St., Cambridge. 379-826

—**SUN-VILLIERS**, 1916½, 2-stroke, Dunlop tyres (unpunctured), Brooks saddle, footboards, horn, little used, perfect condition, owner called up, £24, or nearest. Bouverie Road Garage, Stoke Newington. 379-c381

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—**TRIUMPH**, 3hp, magneto, new tyres, £13 10s.; 5½hp magneto, £15 10s. Collier, Deal St., Halifax. 379-666

—**TRIUMPH**, 1910, 3½hp, standard throughout, excellent condition, new tyres, etc., genuine, £15 10s. Box No. 389, c/o "Motor Cycling." 379-c453

—**TRIUMPH** for sale, late 1912, clutch model, runs on common paraffin, no petrol needed, £25. Particulars, Box No. 388, c/o "Motor Cycling." 379-c454

—**TRIUMPH**, 1911, 3½hp, good mechanical condition, recently overhauled, lamp sets, speedometer, good tyres, £18. Paterson, Gas Entry, Langholm. 372-6444

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JAMES, 3½ h.p., 3-sp., twin	69 10
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ROVER, 3½ h.p., coun'shft, 3-sp.	73 10
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GALTHORPE, 2-sp., 2-str.	34 13
GALTHORPE J.A.P., 2-sp.	39 18
GALTHORPE, Lady's, 2-sp.	37 16

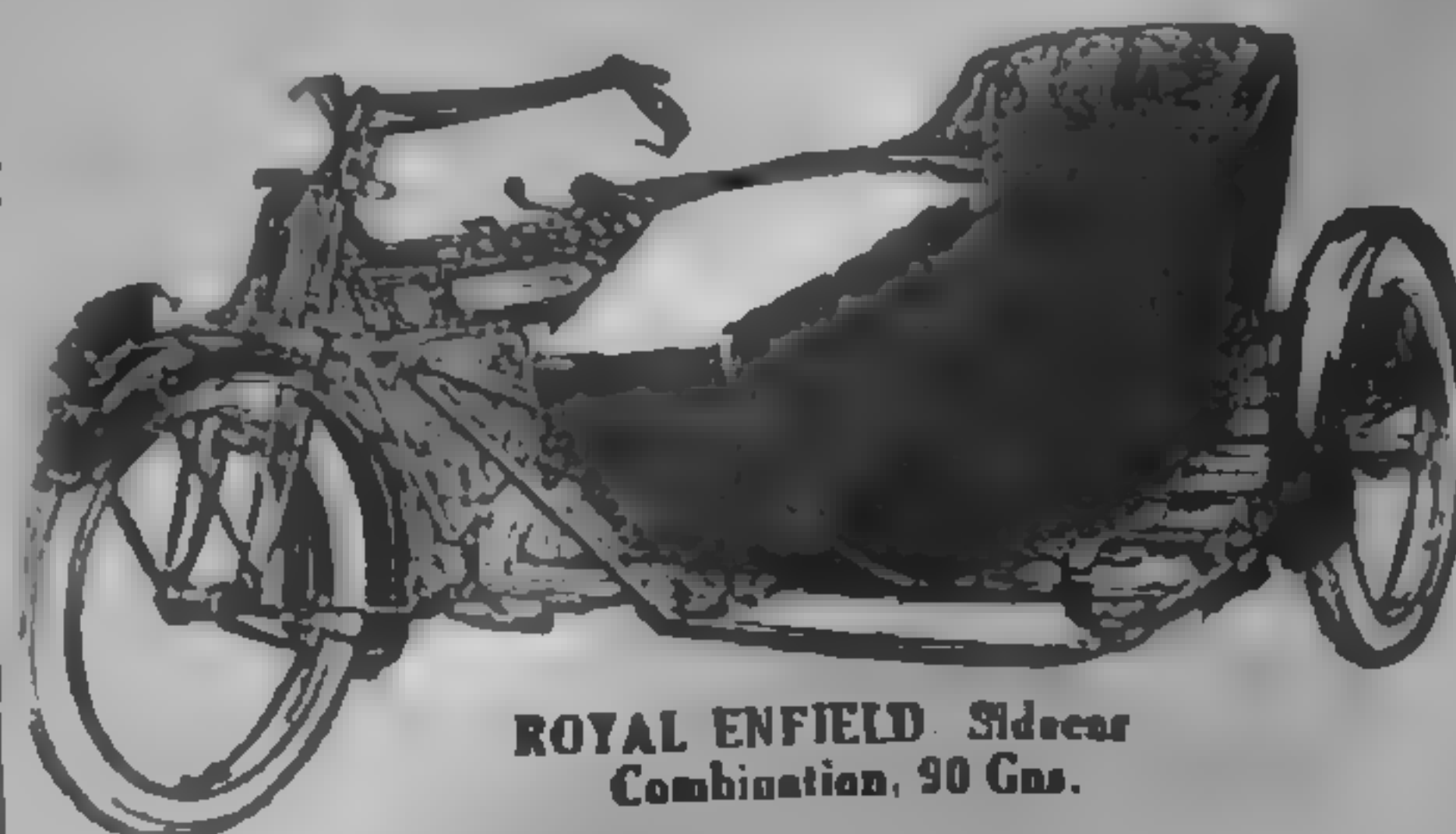


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—**TRIUMPH**, Multi gear, free engine, and sidecar chassis, all; exchange. 215 Kingston Rd., Merton Park, S.W. 379-1333

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—**ZENITHS**, 1915, 8hp, T.T., red, fully equipped, 48 guineas; 1914, 8hp, countershaft, clutch, kick-start, Millford Empress sidecar, 53 guineas; 1915, 4hp, T.T., 29 guineas, with Phoenix sporting sidecar, 11 guineas; 1913, 4hp, 16 guineas. Rider Troward's, 78 High St., Hampstead. 379-839

—**ZENITHS**, new models in stock, 6hp, clutch, Model F, £34 6s.; Model H, 8hp, £85 9s.; 4-5hp, Model D, £73 18s. 6d.; cash, exchange or deferred terms quoted. Elco and Co., 15-16 Bishopsgate Avenue, Camomile St., E.C. 379-354

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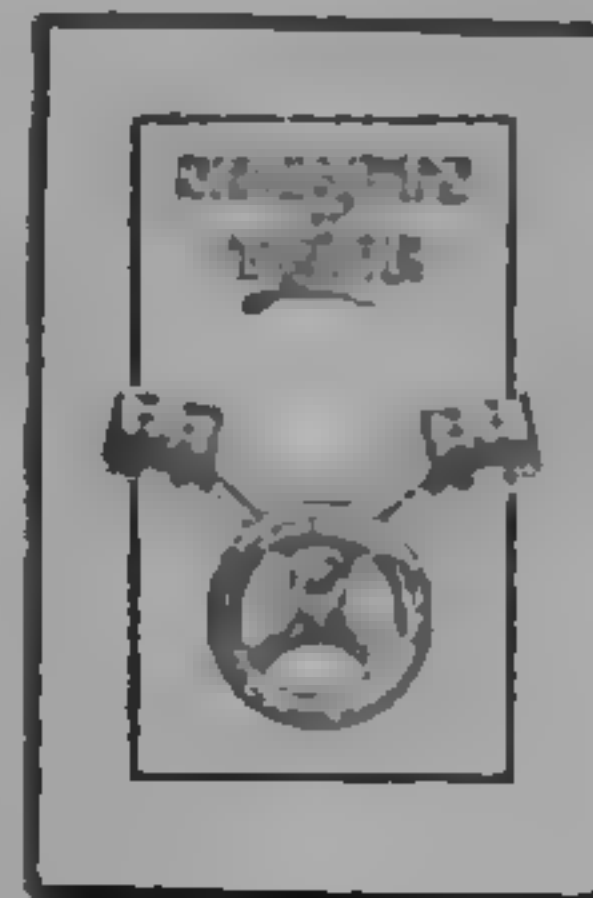
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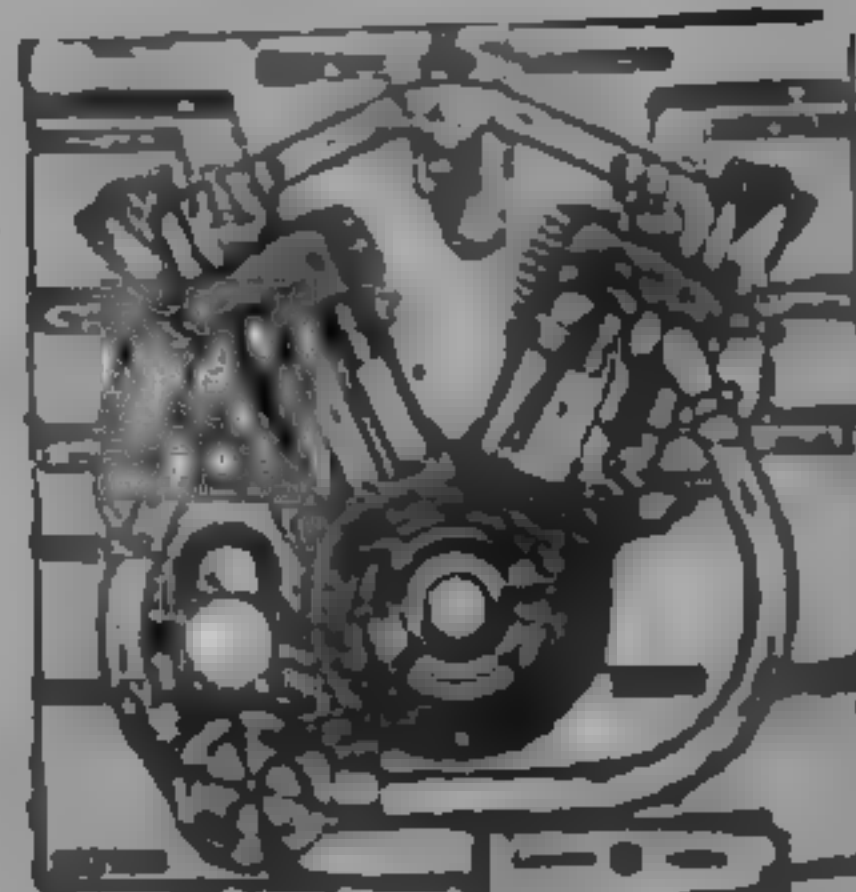
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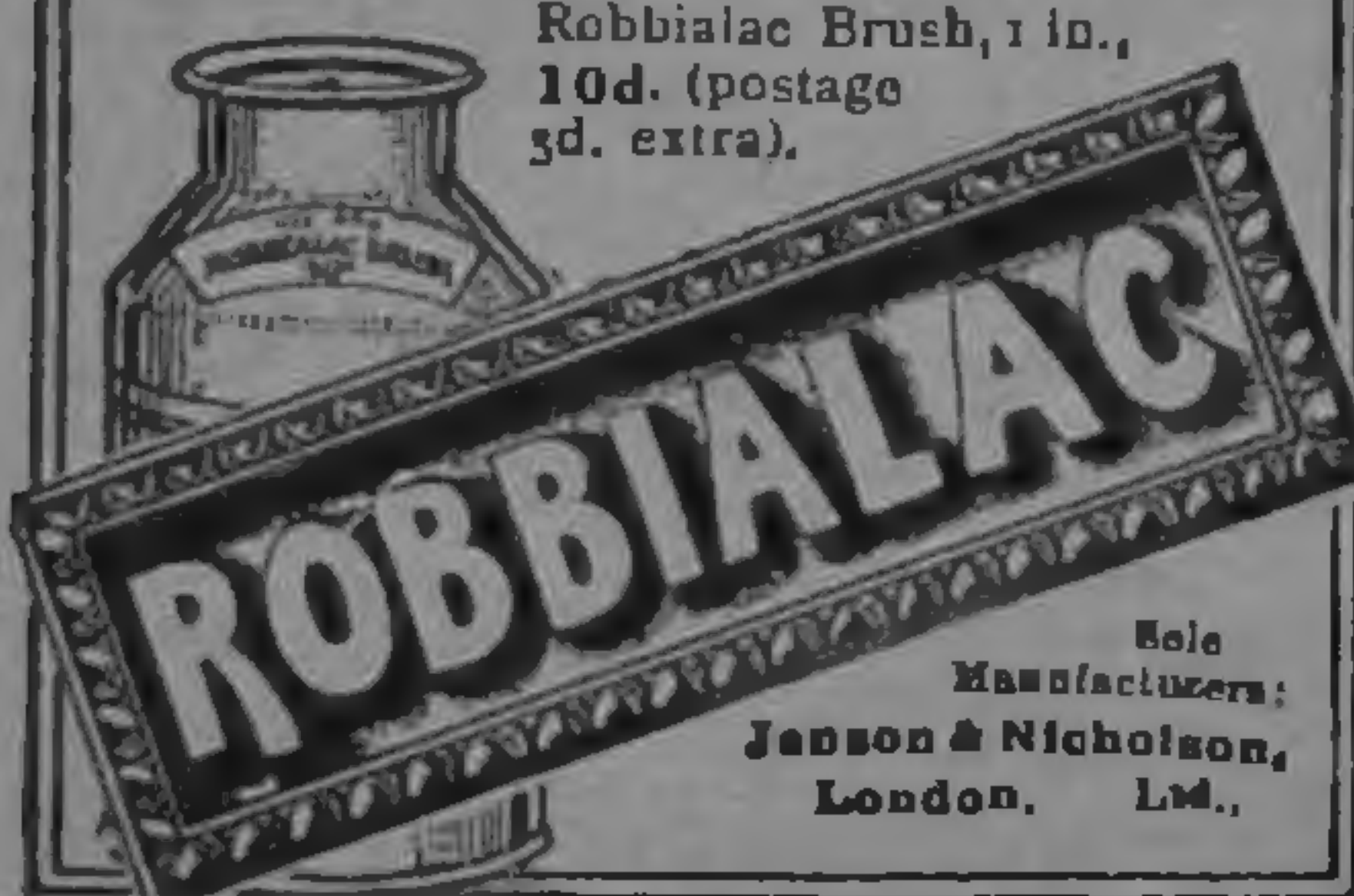
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—**DROPPED** frame, 20s.; ditto tank, 10s.; 20 by 2 1/4 front wheel and tyre, 15s.; back ditto, 17s. 6d.; foot brake, 6s.; sidecar stand, 3s.; auxiliary arm, 3s.; Whittle belt, 2s.; set new plated engine plates, 5s.; B. and B. carburettor, 8s.; footrests, 4s.; horn, 4s. 6d.; lighting set, 14s.; small quantity garage tools and sundries, cheap. 215 Kingston Rd., Merton Park, S.W. 379-1334

—**ECONOMIC** for cheap tyres. See our special offer on page Supplement xiii. Economic Tyre Co., 137 Lewisham High Rd., New Cross. Phone, New Cross 1393. 379-1244

—**DROPPED** back frame, mudguards, carrier, handlebars, number plates, 32s.; Indian touring bars, complete less stem, 10s.; trombler coil, 4s.; back rest, 5s.; 2 ft. 5/8 by 3/8 new Renold chain, 4s.; petrol pipe, 2s.; lamp set, 4s.; headlamp, 3s.; new free wheel, 2s. 6d.; new large electric horn, 9s. 6d.; low-tension magneto, 18-6, single, enclosed, Bosch, as new, £3 10s.; 13 ft. 3/8 Whittle belt, 8s.; 7/8 Lyso, 3s.; new Continental, 7/8, 7s. 6d.; ditto, 1 in., 8s. 6d.; 20 by 2 1/4 cover, 5s.; 26 by 2 1/4, wired, 3s.; 4 ditto, beaded, 4s., 1s. 6d., 4s. 6d., 2s. 6d.; 26 by 2, beaded, 2s. 6d.; 1 20 by 2 1/4, butted tubes, 3s. 6d. each; 3 20 by 2 1/4, endless, 3s. each; large Lucas self-contained car headlamp, No. T53, black and brass, perfect condition, 25s.; cycling suit, as new, 9s. 6d.; Windsor zither banjo, as new, 35s.; set bagpipes, as new, what offers; after six, 100 High St., Colliers Wood, S.W. 379-2411

—**COMPLETE** wheel, 26 by 2 1/4, Armstrong, Mark VII, 3-speeds, clutch, all controls, as new, £8 10s., no offer, expert examination with pleasure, deposit, 55 Devonport Rd., Shepherd's Bush, W. 379-2402

—**1915 MOTOSACOCHE**, 4 1/2, twin, less magneto, carburettor, worth £30, take £12; 1913 4hp Rex, less magneto, carburettor, worth £25, take £10 10s.; 1916 dropped frame, spring forks, wheels counter-shaft, 2-speed, £7 10s.; Triumph engine, 1914, magneto, carburettor, £13; Douglas frame, wheels, tyres; 14hp engine, 2-speed, reverse; 5hp twin Rex, 1909; P. and M. engine, sidecar; cyclocar parts; friction gear. 39 Belmont Park Rd., Leyton. 379-2391

—**BACK** cylinder 1912 Douglas, including valves, perfect, 25s. 76 Herongate Rd., Wanstead. 379-2357

—**1915 SENSPRAY** carburettor, 16s.; Lucas black horn, 10s.; Pit-all 2-speed gear, 25s.; Stewart horn, 12s. 6d.; 1913 Lincoln-Elk, frame, tank, wheels, tyres, etc., complete, less power unit, £5; engine to suit 30s. Brown and Barlow carburettor, 10s.; 1915 Allon 2-speed, cash offers or exchange; numerous goods, to clear, send requirements. Clapham (Motors), King George St., Greenwich. 379-2409

—**J.A.P.** exhaust valve and one inlet, with seating for 9hp, both new, 15s. 6d. Burnham, High St., Cranbrook, Kent. 379-2347

—**TRIUMPH** engine, Bosch magneto, B.B., frame, wheels, tank, complete machine, less tyres and belt; wants assembling, first P.O. for £7 15s. gets same; Stepney and 700-85 cover, nearly new, for wire wheels, 25s.; new Midland grooved heavy cover, 650-65, soiled, £1; new 26-2 1/2 Dunlop studded cover, soiled, 16s. Ray, H. Hoe St., Walthamstow. 379-1224

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—**PREMIER** pattern pistons, gudgeon pins and rings, brand new, 27s. 6d., packing 6d. Robinson's. Below.

—**DOUGLAS** spares, complete range, with 1 or 2 exceptions; pistons, 13s. 6d. complete; T.T. bars, 13s. 9d.; all 3-speed parts; reasonable prices, promptness. Robinson's. Below.

—**DOUGLAS** handbook, illustrated, full of useful hints on overhauling and the care of the Douglas, 1s. Robinson's. Below.

—**TRIUMPH** spares, good assortment, including Triumph-pattern pistons, complete, 25s. 6d., packing and postage 1s.; 84 and 85 mm., in stock. Robinson's Garage, Green St., Cambridge. 379-829

—**NEW** Jones speedometer, complete, no trip, £2; Miller headlamp, generator and bracket, sound order, black, £1; 1913 B. and N. carburettor, clip-on type, 18s. 6d.; older type, 10s.; open type Bosch magneto, anti-clock, for 3 1/2, £3; pair Druid spring forks out of 12 Bradbury, £2; 20 by 2 1/4 b.e. front wheel, complete, 10s.; 25 by 2 1/4 b.e. back wheel, belt rim, complete, 12s. 6d.; about 1911-12 Bradbury engine, 4hp, and free-engine clutch pulley, silencer, sound order, with frame, tank (no forks), £7 10s. F. Curd, 23 Warren Rd., Merton, S.W. 379-800



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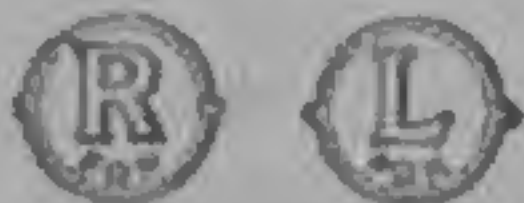


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# Motor Cycling

## Concerning Sparking Plugs

—Extracts from Article by—  
**J. H. L.,**  
"Motor Traction," 7th Feb., p. 100.

and  
**"SPHINX"**  
—ENGLAND'S MOST DURABLE PLUG

It requires no genius, nor even much experience, to assert with confidence that the plug ought to be a good electrical insulator.

Sphinx Plugs, fitted with Sphinx steatite insulators, are admittedly admirable in this respect.

Also that, in case the porcelain, or other insulator, gets covered with soot, the short-circuiting spark shall have to traverse a maximum distance.

In the model illustrated, an internal short-circuiting distance of  $\frac{1}{8}$ " is provided

In the case of some plugs, especially those of high price, the value of maximum insulation distance inside the cylinder is rendered valueless by the extraordinary inaccessibility of the porcelain sleeve and the consequent impossibility of cleaning it from carbon deposit.

The Sphinx model illustrated (Mark D41) is fully and easily detachable.

So that thorough cleansing is impossible, the makers carefully guard the entrance to the porcelain with three obstructions (where one would do), and thus prevent the entrance of any probe or other cleaning tool that might otherwise be employed.

The Sphinx Plug, Mark D41, has only one side wire.

To claim, as I see one maker does, that his insulating sleeve is "unbreakable," is an exaggeration which he would, I suppose, be the first to admit. Porcelain sleeves certainly do break sometimes, and this is another very commonsense reason why the plug should be made accessible, so that the whole plug be not scrapped because of the failure of a part.

The price paid for a plug, much less the advertisement bestowed upon it, is no criterion of service or accessibility.



Sphinx insulators, being produced by a unique process from a material used for no other purpose, this point receives a degree of attention otherwise impossible.

Granted. Where can better value than the model illustrated be obtained?

British Thread (Mark D41), Price **2/6**  
Taper Thread (Mark D42), Price **2/6**

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